

# HARVARD MEDICAL

JOURNAL OF BIOETHICS

## *Fresh Perspectives:*

*El Salvador*

*Revolution in Iran*

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# The New England Journal of Medicine

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# HARVARD MEDICAL

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## INSIDE H.M.A.B.

A year has passed since the *Bulletin* saluted the opening of the Bicentennial with fireworks on its cover. In like fashion, the Class of 1932 startled all Beacon Hill with a pyrotechnical extravaganza. Now, as the Bicentennial year officially draws to a close, we present a genealogic equivalent of that frenetic burst which closes each firework display: a partial pedigree—*partial*, mind you—of the extended Harvard medical family. Atwater has made it, Hefling has inscribed it.

During the Bicentennial we have had the comfort of looking homeward. Alumni bulletins have always done this, and presumably always will. In this issue, we have Henry Bowditch and John Rock. But we also look forward, guided by Mitchell Rabkin's clear vision, to the economic hurdles that face the School and its teaching hospitals. We live with Bob Lawrence in the present turmoil in Central America and its deadly consequences. Farrokh Saidi gives us a personal view of the restless troubles and revolution in the Middle East. Two undergraduates who have never lived in a world free of the atom bomb look upon the reality of the apocalyptic vision.

Certainly the age that is waiting before seems troubled enough; in fact, the sky to all appearances looks like approaching gale. But the festival rites of Alumni Day are upon us. As in ages past we hope to see Harvard's star calm rising through change and through storm. The *Bulletin* will be there to record that cheerful phenomenon.

—Gordon Scannell

# HARVARD MEDICAL

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# LETTERS

## Point, Counterpoint

I was fascinated, amused, and saddened by Victor Sidel's venture into Greek mythology and modern politics in his "Asklepios and Zeus" address printed in the Summer 1982 issue.

While Dr. Sidel's heart is apparently set in the right direction (to help the poor), his socialist welfare-state methods are clearly a scenario for failure. Can he really believe that larger and larger sums of money pumped into "the poor" and less and less spending for military preparedness will help either to reduce the problems of the poor, or to reduce the likelihood of war? Such reverse common sense makes one wonder if he has become too committed to a Marxist view of life or if he has simply failed to learn the lessons of history.

Does Sidel really believe that 50 years of American political liberalism has *not* produced a) an erosion of the American industrial base, b) a lessening of American military competence, c) an increasing number of unprepared poor, and d) near destruction of our economic system?

Might there just be a connection between impersonal government paychecks for non-work, social manipulation enterprises, and an increasing alienation in society from both those receiving the checks and those taxed so heavily for these inefficient and wasteful programs?

Some of us are starting to wake up, and are realizing that jobs come from companies that produce products, not from expanding bureaucracies; that freedom comes from less government, not more; and that socialist-Marxist aspirations result always in increasing central power and oppression by the state and erosion of individual values.

Am I espousing "no government and no care for the poor"? Of course not! What I am saying is that the big-spending, high-taxing, liberal mentality

has run its course and has failed to achieve its dreams. If we are to survive we need a leader who resets our visions and priorities, and rekindles our national pride.

President Reagan has made valiant, though imperfect, efforts to redress these liberal Democrat abuses: the job is not made easier by the Tip O'Neills, the Jim Wrights, and the Victor Sidel's trying to sell their political potions to an increasingly wary populace who, poisoned once, don't want the same product anymore.

—Kenneth Kroll '57

*Victor W. Sidel '57 responds:* I am grateful to Dr. Kroll for taking the trouble to respond to my 1982 Alumni Day address and to inquire into my beliefs. Yes, I really believe (along with McNamara, Vance, and others) that fewer resources should be put into an already bloated and dangerous military budget. Yes, I really believe (along with Galbraith, Thurow, and others) that the cause of the "erosion of the American industrial base" is not political liberalism but rather the misplacement of resources into productively useless weapons production and the short-sighted greed of the management of U.S. corporations.

I also believe that the problem in U.S. liberalism is not that it has gone too far but that it has done the wrong things, and has failed to advance a coherent program to increase productivity, to curb inflation, to ensure full employment, to reduce environmental pollution, and to protect those who through no fault of their own are thrown onto society's slag heap. Furthermore, many of those who were dissatisfied with the Carter Administration and with previous ones for some of these reasons may now be even

more dissatisfied with an administration that at home provides tax breaks for the rich, protection of polluters, and tax support for the owners and managers of mismanaged corporations while in foreign policy preaching a holy war and the idea that nuclear war is winnable.

In addition, I believe name-calling, a tactic that attempts to discredit and in its most pernicious form to silence ideas with which one disagrees, is often a mask for absence of rational arguments against the ideas. And finally, since many "socialists" and "Marxists" indeed share some of the ideas I espouse, I believe elements of these economic philosophies (in contrast to the totalitarian practices of some countries calling themselves socialist as well as of some professing capitalism) may well be worth further consideration.

### Forsitan Disputandum Est

Thanks so much for the great Fall 1982 edition of the *Bulletin*. It is full of gems, not the least of which is Derek Bok's exhortation to the brethren. One question: It seems to me that in the edition of Virgil that I studied back in those days, the quotation was "forsan et haec olim . . ." etc. Am I wrong about this?

Charles Chandler '40

*Editor's Note:* In answer to my esteemed classmate I thank him for his kind words and attention, and can reassure him that he is probably right. Others have brought up the same point, even suggesting that the editor's Latin is shaky. In fact, *forsan* and *forsitan* are the same word. Therefore, though your editor's memory of Virgil may be shaky, and this has not been proved, his Latin is impeccable. A purist may rightly object that the quotation is out of context, and there are those who wonder why everyone remembers this bit of Virgil anyway.

The editors welcome letters from readers, particularly in regard to articles published recently in the Harvard Medical Alumni Bulletin. Letters should be brief, double spaced, submitted in duplicate, and marked "for publication." Not all letters can be used; those accepted will become the property of the HMAB and may be edited, although we are unable to provide pre-publication proofs.



# Addressing the Tug of War

*LAST AID: THE MEDICAL DIMENSIONS OF NUCLEAR WAR*, edited by Eric Chivian, Susanna Chivian, Robert Jay Lifton, and John E. Mack. W. H. Freeman and Company, San Francisco, 1982.

by Oliver Cope '28

*Last Aid: The Medical Dimensions of Nuclear War* is a stunning warning of what a nuclear war would be like, of the catastrophe that such a war would inevitably bring to civilization as we have known it. It should be read by young and old, people of all countries. Half the story is told by the cover of the book itself: a photograph of a single human being riding a bicycle along a road leading through the devastation of Hiroshima a few days after the explosion of the first nuclear bomb dropped by the United States on Japan in August 1945.

Published by the International Physicians for the Prevention of Nuclear War, the book has a global perspective. This group has been organized by a relatively small number of American physicians who have been several times to Russia in the last few years, and have made many friends among prominent Russian physicians. Among the 20 chapters of the book, four are by Russians (one geophysicist and three physicians), all members of the Soviet committee Physicians for the Prevention of Nuclear War. Their chapters contain 15 references to articles by Russian physicians and scientists relating to nuclear war, all published in the last 12 years in Russian scientific journals. This book offers, therefore, important evidence of the concern of Russian medicine regarding the dangers, indeed, the impossibility, of nuclear war.

Three of the chapters are firsthand

medical and physical accounts by Japanese physicians who were in or near Hiroshima and Nagasaki in August 1945 when the two bombs were dropped. In addition, three chapters are by British experts in biophysics. The prologue, preface, epilogue, and the remaining 10 chapters are by established American physicians long known for their sense of medicine's special responsibility to inform not just America's but the world's public about the special dangers of nuclear weapons.

It is of special note that, of the four editors, three are psychiatrists: Eric Chivian of MIT (HMS '68), Robert Jay Lifton of Yale, and John Mack (HMS '55) of Harvard. Lifton and his associate Kai Erikson write of the psychologic numbing of those Japanese who survived the explosions, a phenomenon encountered perhaps following other disasters but hitherto not paid attention to. Mack writes of the worries and depressions, the feelings of hopelessness of hundreds of American teenagers as they learn about the threat of nuclear war. So far, so good. The book makes it quite clear that nuclear weapons are so powerful, so destructive, that if they are unleashed our civilization may literally perish, and that our young are beginning to understand this threat and to wonder what we grown-ups are doing to forestall it.

What *are* we doing? Is medicine's present warning enough? What should we doctors be doing?

Seemingly inadvertently the book tells much more, but without comment. In order to stress the destructiveness of the explosion of a nuclear weapon, it compares the death tolls at Hiroshima and Nagasaki to those of Dresden and Hamburg, the German cities attacked in WWII, with conventional weapons. In 1940 the British Air Force fire-bombed Dresden, and in a

one-night attack 30,000 people were killed; in 1943 the Allied Air Forces bombed Hamburg, killing 50,000, also in a one-night attack. These were certainly not minuscule battle successes. The book also reminds us that some 20 million Russian soldiers and civilians were killed during the German invasion of Russia in WWII. With the enormous increase in power of conventional weapons since then, even without nuclear weapons, modern warfare is not to be entertained lightly. Should not medicine advise that conventional war be outlawed too?

Then too the book quotes, without comment, Admiral Hyman G. Rickover: "When a war starts, every nation will ultimately use whatever weapon has been available. That is the lesson learned time and again." Does not Admiral Rickover mean that in a war between major nations, inevitably, despite promises to the contrary, any country with nuclear weapons would use them? Can we imagine, particularly if the war were going badly for one side, that the generals of that side would not stretch their hands backward to the forbidden weapons in the closet behind them? Has war, when the chips are down, ever been a nicety?

Is it not time to concentrate our attention on war itself rather than just on nuclear weapons? With their understanding of human anxieties, foibles, and aberrations, should not the three psychiatrist editors, Chivian, Lifton, and Mack, see to another book, *Psychologic Considerations of Origins of War*? Surely with an effort on their part to guide us in the art of negotiation, could we not work toward the prevention of war, and would not such effort be even more in line with medicine's responsibility for the maintenance of public health and happiness? □



*Martin Mihm*

## Interhospital Dermatopathology Service Established

In an interhospital approach to a relatively new interdisciplinary field, the recently established Dermatopathology Service offers consultations to dermatologists at four Harvard teaching hospitals: Beth Israel, Brigham and Women's, Children's, and the Massachusetts General. The service expands upon the functions of the Dermatopathology Unit at the MGH, whose director since 1974, professor of pathology Martin C. Mihm, is chief of the new service.

In addition to consultations, the Dermatopathology Service will accept four residents each year. The two-year program includes intensive exposure to diagnostic dermatopathology, study of immunofluorescence techniques, clinical microbiology training, and laboratory work in principles of mycology and tissue processing. □

## Hsien Wu Investigator Chosen

The Hsien Wu Teaching and Research Fund has named Welcome Bender, assistant professor of biological chemistry, Hsien Wu Investigator. The fund, which supports younger but established members of the Department of Biological Chemistry who engage in basic research, was established in honor of Dr. Wu, a gifted biochemist born in China who received his Ph.D. from Harvard in 1919.



*Welcome Bender*

Among Wu's scientific advances were a method of preparing a protein-free blood filtrate that required only a very small quantity of blood to determine all important constituents, and a simplified method for measuring blood sugar, which was widely adopted in the evolving diagnosis and treatment of diabetes.

Bender's research interest is the genetics of *Drosophila*, or fruit flies. Scientists hypothesize that flies evolved from arthropod forms like centipedes, but then developed genes to suppress

the development of multiple pairs of legs and wings. Research at Cal Tech has shown that mutations in a large cluster of genes known as the bithorax complex will produce extra wings and legs. "If we can get our hands on the switch that causes that to occur and what causes that switch to be flipped," says Bender, "perhaps we can understand how a developmental decision is made."

Bender and his colleagues have mapped large stretches of the chromosome on which the bithorax complex is located. They have also discovered that most mutations are caused by splits or breaks in the chromosomes—which in turn may be caused by mobile elements: sequences of DNA that may jump from place to place in the chromosomes.

In the future, Bender and his colleagues hope to use a recently developed technique to insert genes that have been altered biochemically into living flies, in order to learn how the development of a specific trait—in this case, eye color—is triggered and controlled. □

## Cancer Institute Renamed

In the second name change since its establishment in 1947, the Sidney Farber Cancer Institute, one of the Harvard teaching hospitals, has become the Dana-Farber Cancer Institute.

Originally the Children's Cancer Research Foundation, the institute was renamed for its founder, who, among other advances in the diagnosis and treatment of cancer, achieved in 1947 the first complete remissions of childhood leukemia by the use of chemotherapy. In 1969, the institute's charter



was expanded to provide services to adults as well as children.

The new name recognizes the long-term support the institute has received from the Charles A. Dana Foundation, which has recently announced that it will give \$10 million to the Dana-Farber capital development campaign. □

## Stephen Hauser Is Travelling Fellow

Following in the footsteps of such luminaries as Paul Dudley White, Fuller Albright, and Sidney Farber, Stephen L. Hauser '75 has been awarded the Moseley Travelling Fellowship for 1983-84. The fellowship was established in 1912 to support postgraduate study in Europe for HMS alumni, particularly those who have made original contributions and have planned a program of study that will enhance their development as teachers and scholars.



Stephen Hauser

The 109th Moseley awardee, Hauser is currently instructor in neurology, research fellow at Children's and Brigham and Women's hospitals, and a postdoctoral fellow of the National Multiple Sclerosis Society. Author of 13 original papers, he is chiefly interested in autoimmune diseases of the nervous system, such as multiple sclerosis, myasthenia gravis, and Guillain-Barré syndrome. The fellowship will allow him to study in Paris with Pierre-Andrew Cazenave and Jean Pierre Changeux of the Institut Pasteur, continuing to investigate problems of immune regulation, "but on a more basic and fundamental level." □



PHOTO BY JERRY BERNDT

Francis Kirby, Jr. '44, and his brother, Senator Edward Kirby of Waltham

## The Legislature That Came to Dinner

With Harvard Medical School and Massachusetts State banners festooning Boston's Museum of Science, the HMS Alumni Association fêted the constitutional officers and members of the state legislature at a Bicentennial celebration February 27.

The relationship between HMS and the Commonwealth extends back 200 years: when the first professors at the medical school were installed, the governor and members of the Great and General Court of Massachusetts were in attendance. In 1816 the proceeds of a state bank tax were earmarked by the legislature for a new home for the medical school. In acknowledgment of the source of the funds, the building on Mason Street, occupied by HMS from 1816 to 1847, was called the Massachusetts Medical College. The state also has one of the oldest departments of public health in the nation, established by the legislature in 1869 with Henry Ingersoll

Bowditch, an HMS faculty member, as its chairman.

A pre-dinner program of talks by members of the faculty included:

- an outline of the 200-year-old relationship between the Commonwealth and HMS, by Clifford Barger '43-A, Robert Henry Pfeiffer Professor of Physiology
- a description of the Commonwealth Health Care Corporation, which hopes to meet the health-care needs of a portion of the state's Medicaid recipients, by Mitchell Rabkin '55, president of Beth Israel Hospital and professor of medicine
- an update of recent advances in genetics, by Philip Leder '60, John Emory Andrus Professor and chairman of the two-year-old genetics department—the first new basic science department to be created at HMS in 15 years
- an update on transplantation in Massachusetts, by William McDermott '42, Cheever Professor of Surgery and chairman of the Department of Surgery at New England Deaconess Hospital





*Clifford Barger '43-A, professor of physiology, Senator William Bulger of South Boston, and Senator George Bachrach of Watertown*



*Jane Schaller '60, president of the Alumni Association, and William Bulger, State Senate president*



*Philip Leder '60, chairman of the genetics department, and Senator Dan Foley of Worcester*

- a discussion of the Massachusetts legacy of breakthroughs in surgery for congenital heart disease, by Aldo R. Castaneda, William E. Ladd Professor of Surgery and surgeon-in-chief at Children's Hospital

- a history of Massachusetts as the home of advances in diabetes research, with an update of potential breakthroughs in diabetes treatment, by George F. Cahill, Jr., professor of medicine and director of research at Howard Hughes Medical Institute

After dinner the response from the legislature came with remarks from Senator William Bulger of South Boston, who mentioned medical ethics issues that have concerned the legislature and said, "We are anxious to hear from you, to know your problems and needs. We each have our constituencies, and yours includes the whole world whose people come to you for your skills." He concluded, "My colleagues in the legislature deserve your encouragement; they try their best." □

## Off to Wards

### *Internships and Residencies, Class of '83*

Perhaps the most surprising trend to emerge from this year's Match Day statistics is that twice as many graduating students as last year — 26 — have chosen to specialize in pediatrics. Seventy of the 167 graduates (42 percent) will train at Harvard hospitals.

Of the 153 who went through the National Resident Match Program, 52 percent obtained their first choice of residency, and 85 percent were admitted to one of their top three choices. Married couples applied for residencies together, and other special cases secured residencies outside the Match Program.

The specialties break down as follows:

Medicine	53
Pediatrics	26
Surgery	22
Family Practice	12
Anesthesiology	8
Psychiatry	7
Orthopedics	6
Primary Care	6
Radiology	5
Neurology	4
Ophthalmology	4
OB-GYN	3
Pathology	3
Research	2
Radiation Therapy	2
Otolaryngology	1
Neurosurgery	1
Oral & Maxillofacial Surgery	1
Emergency Medicine	1

**Susan G. Abraham**  
New York Hospital, Westchester,  
White Plains  
Psychiatry

**James M. Anderson**  
Yale-New Haven Hospital  
Medicine

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Naval Regional Medical Center,  
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Surgery

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Medicine

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Santa Rosa, CA  
Family Practice

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New England Deaconess Hospital  
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Preliminary Medicine

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New England Deaconess Hospital,  
Medicine

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Massachusetts General Hospital  
Preliminary Medicine

Massachusetts General Hospital  
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Stanford University Hospital  
Radiology

**Lawrence W. Gimple**

Massachusetts General Hospital  
Medicine

HARVARD MEDICAL SCHOOL ANNOUNCES

## THE WILLIAM O. MOSELEY, JR. TRAVELLING FELLOWSHIP

APPLICATIONS INVITED FOR 1984-85

THE BEQUEST OF JULIA M. MOSELEY MAKES AVAILABLE FELLOWSHIP FUNDS FOR GRADUATES  
OF THE HARVARD MEDICAL SCHOOL FOR POSTDOCTORAL STUDY IN EUROPE

In considering candidates for the Moseley Travelling Fellowship, the Committee on Fellowships in the Medical School will give preference to those Harvard Medical School graduates who have —

1. Already demonstrated their ability to make original contributions to knowledge.
2. Planned a program of study which in the Committee's opinion will contribute significantly to their development as teachers and scholars.
3. Clearly plan to devote themselves to careers in academic medicine and the medical sciences.
4. Individuals who have already attained Faculty rank at Harvard or elsewhere will not ordinarily be eligible for these awards.

The Committee has voted that within the funds available the amounts awarded for stipend and travelling expenses will be determined by the specific needs of the individual.

There is no specific due date for the receipt of applications or for the beginning date of Awards except that the Committee requests that applications not be submitted more than 12 months in advance of the requested beginning date and in any event not later than December 31 of any calendar year. The Committee will meet once a year in January to review all applications on file. Applicants will be notified of the decision of the Committee by January 31.

*Application forms may be obtained from, and completed applications should be returned to:*

COMMITTEE ON ALUMNI FELLOWSHIPS IN THE MEDICAL SCHOOL  
HARVARD MEDICAL SCHOOL  
BUILDING A — ROOM 414  
25 SHATTUCK STREET, BOSTON, MASSACHUSETTS 02115

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Brigham & Women's Hospital  
Preliminary Medicine

Brigham & Women's Hospital  
Radiology

**Gilad S. Gordon**  
University of Colorado Affiliated  
Hospitals, Denver  
Medicine

**Barbara A. Greco**  
Massachusetts General Hospital  
Medicine

**Frank A. Greco**  
Newton-Wellesley Hospital  
Preliminary Medicine

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Massachusetts General Hospital  
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Children's Hospital Medical Center  
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Pediatrics

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Baylor College Affiliated Hospitals,  
Houston  
Medicine

**Randall S. Hickie**  
Massachusetts General Hospital  
Preliminary Medicine

Massachusetts General Hospital  
Anesthesiology

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Children's Hospital of San Francisco  
Medicine

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Framingham Union Hospital  
Transitional/Family Practice

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Brigham & Women's Hospital  
Preliminary Medicine

Brigham & Women's Hospital  
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**Bernice D. Jackson**  
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**Correction:** On page 29 of the Winter 1983 Bulletin, a photograph of the Stork Club from the 1954 Aesculapiad was inadvertently given the caption belonging to a photo of the 1957 Stork Club. The photos are correctly identified below:



*The Stork Club, from the 1954 Aesculapiad. Front row: President Vine. Second row: President Upson, President Emeritus Holmes, President Smith. Third row: Presidents Taira, Rashin, Fourth row: Presidents Marcello, Green, Ulrichs, Judd.*



*The Stork Club, from the 1957 Aesculapiad. Standing: Presidents Alexander, Remensnyder, McGeown, Leith. Prone: Presidents Wilkie, O'Connor, Cushing, Brunsting, Onken.*

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Dr. Thomas C. Chalmers wishes to exchange solar heated, three-bedroom house with swimming pool and vegetable garden in Rye, NY (45 minutes from NYC) for house in Cambridge, Belmont, or Lexington area, August 1983 to July 1984. Write: Reba Nosoff, Mt. Sinai Medical Center, 100 Street & 5th Avenue, NY, NY 10029.



# STUDENT FORUM

## The Gravestones All Carry the Same Date

by Virginia Mylo Schaaf and  
Daniel H. Lowenstein

*When Virginia Mylo Schaaf '83 and Daniel Lowenstein '83 made plans to take a leave of absence from HMS in order to do medical work in India, they added a stopover in Japan. Both wanted to "see the place on earth which had been leveled by nuclear destruction, and to share ideas with Japanese medical students on the prevention of nuclear war."*

*With a personal invitation from Dr. Takeshi Ohkita of the Research Institute for Nuclear Medicine and Biology, Hiroshima University, the two travelers next looked for, and found, help in funding their trip, which took them to Hiroshima in October 1982. They thank Rotary International Clubs throughout Japan, International Physicians for the Prevention of Nuclear War, and Dr. Ohkita, "for their guidance and support in helping to make our visit to Hiroshima possible."*

We came to Hiroshima anticipating sadness, and uneasy with the thought of what we might find. Yet there among the hard memories of the horror of a nuclear past, we found a tremendous current of hope. We came to understand how these two attitudes — concern for the past and belief in a bright future — have allowed Hiroshima to survive the death of more than one-third of its population and eagerly step forward today to embrace the modern world.

Our first visit was to Peace Park. Here thick lawns and bright flowers cover the scar that was the bomb's hypocenter. The Memorial Museum stands near the entrance of the park as a permanent record of the nuclear devastation. Stretching across the middle of the first room is a model of the city immediately after the bomb was dropped. One's

attention is quickly drawn to a large display case covering the entire wall behind the model. Inside are three lifesize wax figures fleeing from the surrounding ruins. Their arms are outstretched and the skin hangs loose. They are covered with blood. Their clothes are in shreds. Beside the display, in Japanese and English, are the words:

### Death in Life

Numbers of people headed north. I realized that I could not expect help from them. They were all seriously injured. Some asked me, "Is this the way to the communications hospital?" They were nearly all stark naked, clothed in rags, badly burnt and bloodstained all over. Their hair was stiff and burnt short. Their hands were so severely burnt that they could not move them. They were therefore forced to flee with their hands held out before them. What a terrible sight it was!

Against the background of collapsed houses, fallen trees, and broken utility poles, they rushed toward the hospital for treatment. Along the road were scattered broken electric and telephone wires. This was utterly hell on earth!

Meanwhile, houses across the river were completely burnt down. A fire of tremendous force developed into a tornado. The flame pillar soared up thirty to forty meters in the air, whirling all those things nearby into burning ashes.

—Mr. Hideo Shinpo, *The Atomic Bomb Survivor who was 43 years old, living at Toppocho, 1.3 km away from the hypocenter*

This is but one of dozens of glass cases in the museum which record in various ways the facts of the bombing, or display pictures and present evidence of the three types of effects: blast, burn, and radiation. The door of a safe that was ripped free and bent reveals the power of the blast. Melted roof tiles and plates, mixed in a lump with human bones, record the fury of the fire that raged in some places for three days. Dead-white keloid scars removed in burn surgery,

some measuring 100 centimeters square, lie suspended in bottles of formaldehyde. A mixture of black dust, fire soot, and radioactive material, which fell on Hiroshima as black rain a few hours after the bomb, covers a white plaster wall in dried streaks. Nearby are listed the effects of radiation: leukemia at 23 times the rate of the unexposed, other cancers, radiation cataracts, microcephaly due to in utero exposure.

We left the museum and walked across the park to the Memorial Cenotaph where the names of the A-bomb victims are recorded. Today they number 103,777; new names are added each year. At the far end of the park, across the Motoyasu River, is the A-bomb Dome, one of the few devastated structures allowed to stand as the city rebuilds around them. Formerly one of the most graceful buildings in Hiroshima, the A-bomb Dome remains a gutted mass of concrete and bent steel. The Motoyasu River flows quietly below. It is difficult today to imagine hundreds of victims crowding the shores, dehydrated and desperately thirsty after the heat wave of the bomb, soon finding it necessary to walk over bodies to get to the water. Now every August 6, the survivors float lighted lanterns down this river.

The heaviness of the past lies everywhere in Peace Park. There is clear purpose in the painstaking collection of the terrible facts: to understand what happened and then to remember. The day we visited, hundreds of Japanese schoolchildren were brought in busloads to the park. We watched several first-graders walk quickly and with wide eyes around the exhibits of melted human bones and tufts of irradiated hair. The next group was younger. Their faces registered incomprehension. Others, young adolescent boys, pored over the displays of human mutilation. The older children had grown up with Peace Park; they appeared more contemplative and understanding.

Our next visit was to two medical facilities engaged in the care of A-bomb survivors. The Hiroshima Atomic Bomb Hospital, established in 1956 by the Japanese Red Cross, today treats approximately 130 outpatients a day and houses an average inpatient population of 150. We saw the wards filled with old men and old women — the average age is 70. It has been 37 years since the bomb exploded. Today the diseases of the survivors



are those of old age: malignant tumors, heart disease, cerebrovascular disorders, cirrhosis of the liver, diabetes, diseases of the respiratory system.

All patient records from the hospital are sent to the A-bomb Welfare Center, where the healthy survivors receive semiannual check-ups, 50,000 each year. The center is fully equipped with diagnostic tools, including a CT scanner. More important, however, is the room where rows and rows of files are kept. Here lie the chest X-rays, blood counts, and pathology reports listing each diagnosis of cancer. The files are carefully handled. The importance of the information is clear, particularly for understanding the relationship between radiation and cancer. Besides leukemia, a number of solid tumors have appeared frequently in survivors: cancer of the lymphatic gland (increased 7.4 times above normal), of the breast (increased three to four times), of the salivary gland (increased 4.3 times), and of the thyroid (four to nine times normal).

Several research facilities throughout the city also carry out documentation of disease in survivors. We visited the Institute for Nuclear Medicine and Biology at Hiroshima University, where the aberrant chromosomal patterns of A-bomb victims are studied. Similar research is done at the Atomic Bomb Casualty Commission, which stands high above the city haze, on Hijiyama Hill. There four studies are conducted on a sample group of survivors, who undergo tests every four years. One project measures chromosome alterations, another examines enzyme defects. Here, as in the crowded file room at the Welfare Center, the details of the past are collected and recorded with care.

On our third day in the city, we are taken to the Hiroshima Cinema Center. After hasty, somewhat abrupt greetings, we find seats in the projection room. Black shades are pulled to shut out the mid-afternoon sun. The projector whirs and onto the screen flash documentary clips of the weapons of the superpowers. The detached voice of a news announcer describes the characteristics of each missile, submarine, and plane.

Thus begins our afternoon with the "Ten Feet Films." Our host for the event is a student at Hiroshima Medical College, whom we had met several

*It is difficult today  
to imagine hundreds  
of victims crowding  
the shores of the  
Motoyasu, dehydrated  
and desperately  
thirsty after the  
heat wave of the bomb.  
Now every August 6,  
the survivors float  
lighted lanterns  
down this river.*

days before. He arranged a special showing for us of two newly released Japanese films. Much of the footage was recorded during World War II, then confiscated and held in the U.S. National Archives, and only recently declassified. The Japanese organized a nationwide fundraising campaign to buy back films of the August 6 bombing and the aftermath. Over 100,000 people contributed individual gifts sufficient to buy at least 10 feet of film. Ninety thousand feet were obtained. The remaining funds are being used for international distribution. Two films have been released to date, *Prophecy*

and *The Lost Generation*, and a third is scheduled for completion next year.

The scenes before our eyes shift from the technicolor film segments of weapons systems to flickering, black and white panoramic shots of the city just after the bombing. A mother wheels her bandage-covered child through the grey, flattened landscape in search of the rest of the family. Black, charred bodies with the appearance of papier-mâché lie amid the rubble. We see shadows of ladders, fences, and people scorched into the concrete. It seems endless: scenes of the hospitals in Hiroshima and Nagasaki filled with thousands of victims, faces burned beyond recognition, hairless and emaciated children succumbing to the radiation sickness. Now we are back to the present, following a *Hibakusha*, a survivor, visiting the hospital for a check-up. He removes his shirt, revealing heaped-up scar tissue disfiguring his back. Despite scores of operations over the years, there are still places on his back where the skin breaks down, requiring vigilant care.

Now we see the same man as a teenager, lying on his stomach in the hospital immediately after the bombing. Careful hands debride the raw, weeping burn. This time sequence is repeated with a number of other victims. We see their mutilations at the time of the bomb, and how they appear and feel at present. In these



*The A-bomb Dome*

PHOTOS BY DAN LOWENSTEIN



sequences lie the power of the Ten Feet Films. They convey in an original and striking manner the individual, ongoing tragedy of nuclear war. They strip away the softening blanket of time.

We sit without speaking, thinking the worst must be over. Still the movie continues. We see post-war victims half-naked and humiliated, filmed for the sake of documentation. There are scenes of children dying in the hospital interposed with modern-day shots of laughing, playing children wearing beanies, just as we had seen them in the Peace Park. The last moments of the film bring hope to balance the sadness, the scenes of the demonstrations against nuclear war that are sweeping across Japan, Europe, and the United States.

We sit quietly for a moment. Finally someone goes to the window and pulls the curtain back. The late afternoon light fills the room and we begin to talk with the Japanese medical students about the work they have done in their own school on the issues of nuclear war. We cannot help smiling at the similarities to our own efforts: study groups, lectures, films, with dismal attendance at times. Independently, we have come to recognize the responsibility of the medical profession to vocalize the effects of nuclear war. We hold a common vision of the future, and the belief that individual, international commitment is the stepping-stone to peace.

Our final afternoon in Hiroshima brings the climax of our trip. With several Japanese friends, we enter a lovely home, settled in the trees. We exchange shoes for slippers and follow our distinguished host, a university professor, into his tea room.

The room is empty except for a vase and two flowers that stand in the corner beneath a scroll. The floors and walls are covered with straw mats. We sit, our legs tucked under us. A young Japanese woman in kimono enters, walking with tiny steps. The tea ceremony begins.

Every bowl has its place. Every gesture has meaning. She measures the green powder and ladles in boiling water. She mixes the tea with a wooden whisk and teaches us how to drink. Pick up the bowl with your right hand, touch the bottom with your left palm, then set it on the mat beside you. Offer it, bowing, to the person on your left, then your right, and bow to the

hostess. Pick up the bowl again (right hand, left palm, right hand) and turn it twice clockwise toward you. The hostess, they explain, has turned the "best" side of the bowl to face you, and so you humbly turn the best side back.

We each drink a bowl of tea and eat sweet cakes, and all the while our host talks to us about traditions. We are told that our hostess has studied five years, learning to serve tea. Our host explains the meaning of the scroll and he tells us the name he has given to each of the old tea bowls. To find the meaning in an object or an action, to nurture it, and then to preserve the

keep it for a special occasion."

She bows and sits. We toast and then drink. The afternoon light begins to fade. We talk about death, about doctors and trust, then weddings and students, and nuclear arms.

"I am by nature a pessimist," our host explains, "but I count it a victory if we can postpone the world nuclear holocaust 10 years. You know, we in Japan don't hate Americans. In fact we think they're in the 21st century, with blacks and Irish and Hispanics all together."

Sushi appears on a red lacquer platter. The bottle of saki is endless, and



*Peace Park*

blossom—this is part of the great Japanese tradition.

After the ceremony, we go back to the main room and take our places cross-legged around a low table. Our host places a rose-colored bottle of wine before us. He passes around bowls filled with dried fish. When a guest pulls out a bottle of saki and opens it, our host laughs and retires behind one of the screen walls. In a moment he emerges, carrying the biggest bottle of saki we've ever seen. As he opens it, a frail woman dressed in black comes quietly into the room. Our host gestures proudly.

"This is an A-bomb survivor," he says, "a *Hibakusha* who lost all her family. She is 84. She was trying to hide this bottle of saki from me, to

it must be drunk, they tell us, before anyone leaves. An hour later they help us walk to the car. The *Hibakusha* speaks no English. In silence she steps forward to hug us goodbye.

With that embrace, our journey ends. We stand side by side in the cool night air. She smiles, and that smile becomes a jewel that we will carry fixed in our minds beside the Hiroshima scars. In her face we see a sad reconciliation with the horror of the past, as well as gratitude for the spirit of this evening, and for those human qualities that make people more alike than different. Her smile remains a blessing on our hopes, and the hopes of millions of people around the world, that humankind will come to understand the story of Hiroshima. □

# Human Rights, the Geneva Convention, and El Salvador

by Robert Lawrence

**O**n December 16, 1981, at 4:30 p.m., Dr. Carlos Armando Vargas Lopez was apprehended by four armed men in front of his clinic in San Salvador. When he resisted, the men hit him with their rifle butts, gagged him, and threw him into a waiting vehicle.

According to a report by Socorro Juridico, an independent human rights group operating out of a Jesuit high school in El Salvador, a military truck filled with National Police passed while the abductors were forcing Vargas into the vehicle. Vargas' captors had only to show their weapons to the police in order to proceed with the abduction. Other accounts identify the vehicles in which the four men had been waiting for Vargas as a double-paneled Volkswagen van and a green Toyota pick-up—vehicles which had been identified with several other "disappearances."

In the days immediately following the abduction, the Vargas family pursued all avenues of help. One brother called a classmate, the son of then-president Napoleon Duarte. The family also called the archbishop's office, explored all possible contacts with the military, and notified Amnesty International. The American Embassy in San Salvador and the State Department in Washington were notified by relatives living in the United States.

On December 27, according to the Vargas family, the American Embassy reported that Vargas was alive, but that the government denied holding him. On January 3, 1982, a Salvadoran lawyer informed the family that Vargas was alive but had been severely beaten. In March there was one final message: a fellow prisoner had talked to Vargas. The family steadfastly maintains that Vargas is in the custody of the Salvadoran security forces either

in San Salvador or in a detention area outside the capital.

Carlos Vargas is just one of 16 Salvadoran medical personnel whose "disappearances" since December 1981 I helped investigate as a member of an American medical mission to El Salvador in January 1983. Our main goal was to determine whether the condi-

*Our list of  
"disappeared" included  
six physicians,  
five medical students,  
one nurse, and  
four medical workers  
of organizations  
such as the  
Salvadoran Red Cross  
and the Salvadoran  
Social Security Institute.*

tions of the Geneva Convention were being honored with respect to medical neutrality under conditions of war.

When Kathie McKleskey of the Clearinghouse on Science and Human Rights of the American Association for the Advancement of Science first called to ask me to participate in the mission, I was conscience stricken. I had just declined an invitation to participate in another medical delegation to El Salvador after weighing the chances for success, the risks, the concerns of my family, and a crowded January schedule. But now to be asked again, and by a totally different

group—I conferred with my wife and with Dean Spellman, and agreed to go. It had been 14 years since my two-year stint in El Salvador as an epidemiologist in a malaria research unit of the Center for Disease Control of the U.S. Public Health Service.

Kathie McKleskey and Nina Shea, a lawyer with the International League for Human Rights, formed the advance team, arriving in El Salvador on January 8 to schedule appointments and collect additional information. Alfred Gellhorn, visiting professor of health policy and management at the Harvard School of Public Health, and I arrived three days later, representing the National Academy of Science, the Institute of Medicine, and the New York Academy of Science.

Now that I had agreed to the trip, I didn't want our mission aborted by a squabble within the military high command. My anxiety was heightened by reports of Colonel Ochoa's revolt in the province of Cabanas. I feared that a volatile situation would explode or that the military crisis would be used as an excuse to deny us access to some of the government and U.S. Embassy officials we wanted to meet. On the drive from the airport to our hotel in a bullet-proof unmarked van supplied by the U.S. Embassy, Nina Shea reassured Gellhorn and me that appointments with key government officials were still on and that permission had been obtained to visit the political prisons as well as the detention units of the National Police and the Treasury Police.

**W**e started our work that evening with a visit to the offices of the International Committee of the Red Cross, the Swiss agency devoted to international relief efforts. The ICRC has an agreement with the government of El Salvador allowing it free access to all prisons and detention centers, and on several occasions has saved the lives of detainees whom the security forces had denied having imprisoned.

In July 1982 the ICRC had threatened to withdraw its mission because of growing concern over the human rights abuses perpetrated by the armed forces of El Salvador, particularly their prac-





*Kathie McKlesky, of the Clearinghouse on Science and Human Rights, with children who have been in the refugee camp Refugio San Jose de la Montaña for up to 18 months. The shack behind them was typical of their living quarters until the Catholic Church recently made more durable materials available.*

tice of not taking prisoners in combat. The ICRC had decided to stay because on balance it felt it could be a more effective force for decent human behavior by applying steady pressure rather than by making a single dramatic statement.

We began by sharing our list with the ICRC: six physicians, five medical students, one nurse, and four medical workers of organizations such as the Salvadoran Red Cross and the Salvadoran Social Security Institute had "disappeared." Preliminary information on the cases was compiled from materials of Amnesty International, Salvadoran human rights organizations, families of the "disappeared," and the AAAS Clearinghouse on Science and Human Rights and the International League for Human Rights.

The list contained only those cases of abductions previously attributed to the security forces of the government of El Salvador. The total number of deaths, unreported brief detentions, and kidnappings of medical personnel

is much greater. One report prepared for us by the Socorro Juridico documented an additional 20 deaths of doctors, nurses, and health workers in 1982. The Ministry of Health reported that 40 of its medical workers have been killed since the fighting began in late 1979.

Carlos Vargas' case illustrates the nature of the human rights violations. He had graduated with high honors from the School of Medicine, National University of El Salvador, in 1977. He later taught physiology at the university until it was closed by military occupation in 1980. He then worked in his own private clinic and did volunteer work in a health clinic connected to the Archdiocese of San Salvador.

Why had this dedicated young physician been abducted? His crime, we learned, had been to serve as a member and secretary general of the committee for the Defense of Patients, Health Workers and Health Institutions. The committee was formed in early 1980 when doctors and patients in the hospitals of San Salvador were gravely im-

periled. Patients were dragged out of wards and intensive care units and shot, or were killed while on the operating table. Health workers who attempted to interfere were themselves removed by armed men and later found dead.

In response to these unspeakably outrageous violations of the Geneva Convention and of human decency, the Vargas committee, with the cooperation of other medical faculty, students, and health workers in several hospitals, staged a series of work stoppages which drew international attention—but at a heavy price. Of the original committee of 11 doctors, eight have been killed or have "disappeared," and the survivors are in exile.

Colonel Lopez Nuila, chief of the National Police, and Colonel Moran, chief of the Treasury Police, gave us no information on Carlos Vargas and denied that such "disappearances" would ever be sanctioned by them. They did inform us, however, that the security forces share no information about arrests and that it is difficult to control their men on occasion.

We asked to see the detention facilities where political prisoners are held before being transferred to the political prisons or released. At the National Police Headquarters we were first shown an above-ground row of cells, each containing up to 30 prisoners held on criminal charges. We were free to stop and talk with them, ask how long they had been held, what crime they were accused of committing, or where they were from.

Then we were led to the political section in the dank underground bowels of the jail. We groped along a row of foul, pitch-black, barred cells. We were not permitted to speak with or examine the political prisoners, who looked dirty and haggard as they sat on the concrete benches which, along with the hole in the floor for a latrine, represented the only structural details in the cells. We also saw the small interrogation rooms, which were no more than wooden boxes each containing a desk, two straight chairs, a hanging bare bulb, and an observation win-





SUSAN MEIBELAS

Carol Eisenberg examines children in a refugee camp

## Refugees of a System in Collapse

Carol Eisenberg, dean for student affairs, traveled to El Salvador in January as a member of the Public Health Delegation of Inquiry, a fact-finding mission that overlapped for a few hours with the group Robert Lawrence participated in. Like Lawrence's group, it had originally intended to investigate abuses of medical neutrality. "But what we found," said Eisenberg, "was that the gross violations of this principle, along with every other form of human rights in El Salvador today, cannot be separated from the total noxious and brutal environment."

In addition to confirming the findings which Lawrence describes in these pages, the delegation investigated the condition of refugees—primarily children, women, and the elderly—in makeshift camps. They found severe malnutrition, skin diseases, pediculosis, diarrhea, and whooping cough. Scabies was almost universal.

The visitors found that "virtually no medical services other than inoculations were available to the

residents of the refugee camps." Because their displacement has occurred within the country, government and international bodies—including the United Nations—do not recognize them as "refugees," and there has been little international concern for, or awareness of, their plight.

Even outside the camps, conditions for children are appalling: out of every 1,000 children born in El Salvador, 180 die within the first year of life; in some rural areas, nearly two out of three infants die. Forty percent of newborns weigh less than 5.5 pounds; a third of the population is clinically anemic; and 80 percent of children under age five suffer from malnutrition. Those who survive into adolescence face the threat of abduction and imprisonment; some are forced into the military after the age of 10.

The Public Health Delegation of Inquiry was sponsored by eight health organizations, including the American Public Health Association and the American Medical Students Association.

dow. We were not taken to the "Seccion Cain" where, we were later told by other prisoners, detainees are tortured and interrogated while blindfolded and with their thumbs tied together behind their backs.

At the Mariona (for men) and Ilopango (for women) prisons we were granted free access to talk with the prisoners in privacy, to examine them, and to visit their health facilities and living quarters. The vast majority had been held well beyond the 180 days authorized by Special Decree 501, which permits the government to detain without judicial review or formal charge individuals suspected of subversive activities.

At Ilopango all of the women reported that they had been sexually abused and many of them raped during the initial detention. None had yet appeared before a judge; most had been forced to sign confessions while blindfolded. A part-time physician was available to see up to four prisoners three times a week, but the medical supplies provided by the Ministry of Justice for the prison were so inadequate that the prisoners had developed their own small pharmacy.

One prisoner was clearly psychotic and had been held at Ilopango for more than a year because she had freely admitted to membership in every subversive group. She has never been examined by a psychiatrist, a clear violation of the Geneva Convention for the management of prisoners who are insane.

The following day we visited Mariona, on the outskirts of San Salvador along the road to the rebel strongholds in the north. Over 600 male political prisoners are housed with about 400 common criminals. Again we were allowed to interview the prisoners *sin testigo*, or without witnesses. Their stories were numbingly similar. Most had been abducted at night by heavily armed men in civilian clothes or military uniforms, blindfolded for days while beaten, tortured, interrogated, and humiliated. Finally, they were forced to sign confessions, often while still blindfolded, and committed to Mariona without being formally charged or taken before a judge.

We saw the scars of acid or hot metal burns—some still fresh and un-



healed — and met an elderly *campesino* who had been so badly beaten in the genitals that he had required surgical castration. His crime was union-organizing activity that had taken place 15 years earlier.

We met three medical students and one medical worker from our list of “disappeared” at Mariona. We also interviewed three members of the science faculty from the university who spoke freely of their abduction but declined to describe the period of detention which preceded incarceration. When pressed for details, they explained that they feared for the safety of their families, and reported cases of family members disappearing on the prison road after visiting Mariona. Despite these fears and the indefinite length of their sentence, the prisoners referred to themselves as “the lucky ones.” They are alive and, having made it to Mariona, they probably will not disappear.

**O**n our last day we turned our attention to the effects of the reign of terror on health services and health institutions. The medical school had been closed in 1980 along with the rest of the university. Only in recent months had limited clinical instruction resumed. Several private storefront schools had opened, but without laboratory equipment or demonstration materials, these efforts threatened to be no more than diploma mills.

The budget of the Ministry of Health had been slashed in each of the past three years, personnel had been intimidated, and most of the 80 mobile rural health units had been destroyed. We visited the national maternity hospital, where 75 women a day give birth, often two or three to a bed. No X-rays had been taken for over three weeks for lack of film. As many as 15 caesarean sections are performed daily using antiquated and unsafe anesthesia equipment. The pharmacy consists mostly of barren shelves, and the only blood bank in the country is at the military hospital, where loyalty to the regime is considered an essential part of cross-match compatibility.

From my earlier times in El Salvador I remembered the graceful colonial

architecture of the building which housed the clinical faculty of the medical school. It now stands as an empty ruin, roof caved in, rubble filling the laboratories and lecture halls. Only the carved stone portal reading “Scuela de Medicina” identifies its former role. One day army trucks had backed up to the main door and had been filled with the more valuable laboratory equipment. They were followed by soldiers who came for furniture and smaller pieces of equipment, and civilian looters searching for building materials, plumbing fixtures, and pipe. No one intervened, no cries of outrage were heard; it hardly made the local papers.

When I asked one faculty member how a government could destroy its own national university, he quietly stated that the ruling forces in El Salvador do not share the human values of the civilized world. Evidence for the truth of his statement abounded: since the hostilities began in 1979, one

person in 190 has been the victim of political assassination.

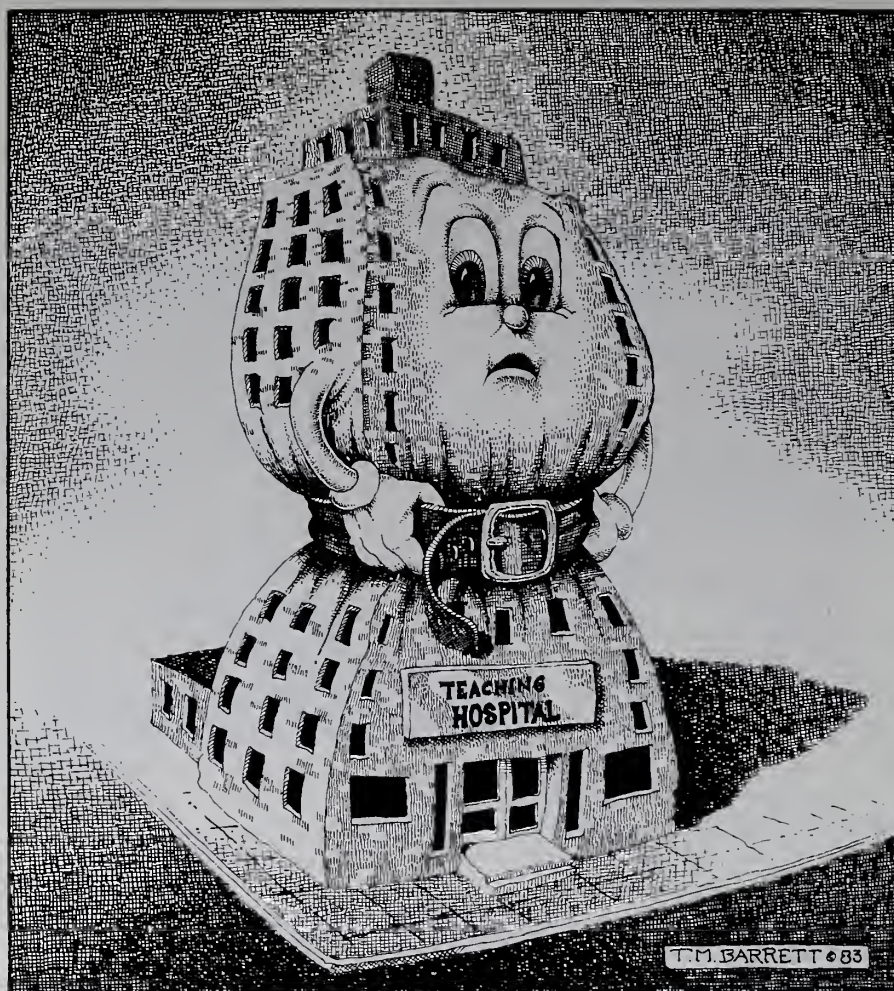
The answer to El Salvador's plight does not lie in more U.S. military assistance. As the posters in the office of the archbishop and on the walls of the national cathedral proclaim, “el dialogo por la paz, una urgencia para nuestro tiempo.” The dialogue for peace, an urgency for our time. As part of this dialogue for peace, America should stop supplying death-dealing military aid and should instead send life-affirming humanitarian help in the form of medicines, medical equipment and supplies, books, teaching materials, and health personnel. I hope my next visit to El Salvador can be as part of such an effort. □

*Robert Lawrence '64 is associate professor of medicine, chairman of the Division of Primary Care at HMS, chief of medicine at Cambridge Hospital, and a member of the Bulletin's editorial board.*



*This communal kitchen of the refugee camp Refugio San Jose de la Montaña serves 1,500 people each two tortillas, one serving of beans, and a glass of lemonade per day, at a cost of about 30 cents per person per day.*





# A New Chapter in Hospital Finance

by Mitchell Rabkin

*In August of 1982 the Massachusetts State Legislature, working in special session, enacted a new bill aimed at reducing hospital spending—a bill which is being looked at as a possible model for controlling health-care costs in other parts of the country.*

*The new legislation, known as Chapter 372, applies only to hospitals and their affiliated outpatient departments, but predictions are that it will have a profound effect on the whole structure of health-care management in Massachusetts. Built into the bill's strategies for reducing spending, to give one example, is financial incentive for providing more outpatient and less inpatient care, which may create competition for outpatients among types of hospitals, neighborhood health centers, and health maintenance organizations. The bill will also have a strong impact on the handling and allocation of Medicaid and Medicare funds, much of which has yet to be resolved.*

*Closest to the immediate concerns of Harvard Medical School are the effects of Chapter 372 on the teaching hospitals. Below, Mitchell Rabkin '55, president of Beth Israel Hospital and professor of medicine, gives his views on the effects of the new legislation, adapted from his remarks in a talk to the Alumni Council in January.*

In recent months there has been a significant change in the payment of health care in the Commonwealth of Massachusetts—a change which has already had a major impact on the Harvard-affiliated hospitals. According to Chapter 372 of the Massachusetts Acts of 1982 (effective last October), third-party payors—public and private insurers—must make prospective payment for inpatient care.

Instead of paying the cost of health care after it is delivered—whatever that cost comes out to—third-party payors negotiate payment in advance. If the institution can deliver the care for less than the negotiated figure, it is rewarded with the surplus. If it spends more than the negotiated figure, however, it must absorb the loss. This is

ILLUSTRATION BY TOM BARRETT



a shift from an inherently inflationary reimbursement mechanism—we'll pay you for what it costs you—to a more effective incentive mechanism designed to temper both utilization and cost.

The new payment formula is based on current Blue Cross payment calculations. Private insurers, which formerly paid charges in full, now have a smaller differential between their rates of payment ("charges") and those of Blue Cross ("costs"). Medicare pays somewhat less than 90 percent of the Blue Cross figure, even though the latter is the closest approximation to true cost. Medicaid pays somewhat below 75 percent of the Blue Cross rate.

The new formula also expects hospitals to improve the productivity of their efforts, resulting in cuts in payments. These cuts, called "productivity factors," may help trim the fat off some budgets, delivering the same quality product for less cost—but where the institution is already efficiently run, will erode the muscle and bone that make for quality, creativity, and solid good service.

How did Chapter 372 come about? It emerged from discussions among members of the Massachusetts Health Care Coalition, a somewhat uneasy alliance of the Massachusetts Business Roundtable, Massachusetts Blue Cross, the private companies in health insurance (through the Life Insurance Association of Massachusetts), the Commonwealth of Massachusetts (both the Public Welfare Department and the Rate Setting Commission), the Massachusetts Medical Society, and the Massachusetts Hospital Association. The payors—all of them—had had it with the cost of health care, and they were determined to do something about it.

Had we not secured the waiver of Medicare reimbursement rules that allowed Chapter 372 to come into effect, we would have been virtually as tightly controlled under the new federal rules for Medicare reimbursement. While the original idea of "coalition" may have been that of Harvard's Professor John Dunlop (disparate parties meeting in private to hammer out the pieces of possible and likely solu-

*The reasons behind the legislation, I submit, lie in the nature of the general economy, in the downturn in business, not the upturn in health-care costs.*

tions to complex issues, before the perturbations and politicking which emerge from open scrutiny of the effort by the respective constituencies, the media, and the public), the actual process was more directed to a choice of which pill the hospitals would swallow.

At the Beth Israel Hospital, having prepared what seemed a prudent budget for the fiscal year October 1982–September 1983, we were obliged after Chapter 372 to cut out about \$3 million in expenditures. Since a bit more than half of teaching hospital budgets go for personnel, this meant dropping about 40 full-time positions, at levels scattered throughout the organization. Fortunately much of the decrease is taking place through attrition. A bit of it is being met through departmental practice-plan resources, and chiefs of service have been generous and responsive with their resources. But I think those resources have been taxed to the limit, and most of the jobs are truly gone, as are the supplies and services not purchased.

This year's constriction could be perceived as "belt-tightening," but the additional cuts mandated by Chapter 372 for fiscal years 1984 and 1985—projected for the BI to be about \$3.2 million and \$2.2 million, respectively—will likely require the sacrifice of specific programs, both clinical and non-clinical. Not the hospital nor the medical school nor the practice plans have the resources to "stay the course." It is my understanding that the exper-

ience at all the Harvard hospitals has been comparable.

The need to cut costs will include pressures to limit the numbers of house staff and fellows supported by the hospitals. This is a tough call, for several reasons. In tertiary care institutions such as ours, the degrees of complexity of our patients only increase, and the need for house staff surely does not decline. Furthermore, medical schools have been graduating increasing numbers of physicians, and we're close to the point nationally where the number of first-year post-graduate positions is about equal to the number of graduates. The total number of positions in some specialties may also be cut by hospitals as specialty groups increase the number of years of required training.

The support of academic programs overall is becoming increasingly fragile. There is no recourse to be had at HMS—Dean Tosteson has his own money problems. Research grant sources are tightening, and the search for support from industry has its limits. What's left? We seem to be leaning more and more on the clinical practice plans for support of academic enterprise.

Thus the chief of service must seek to increase clinical service activities (patient care) to generate more cash, a move which can alter the balance of the academic department. The research scientist will likely object to putting more time into practice; given the growing competition for research funds, he or she must intensify the effort at the laboratory bench.

For patient care, the chief might add individuals to the service whose major activity will be clinical practice, with perhaps some teaching, but likely no research. These alternatives lead to a tremendous change in the ecology of an academic department, from the allocation of space to the distribution of clout. And how shall these clinicians move along the academic ladder? It's pretty tough to tell those who are generating support for your academic activities that you cannot recognize them since they are not sufficiently academic

and should spend less time in practice and more in publishing!

Chapter 372 did not spring forth because the financial performance in Massachusetts was worse than that in the United States as a whole. In fact, under the Massachusetts Rate Setting Commission, inpatient costs per capita have increased significantly less than the national average.

The reasons behind the legislation, I submit, lie in the nature of the general economy, in the downturn in business, and *not* the upturn in health-care costs. The need to restructure was perceived at a time when we had moved from an inflationary economy — when health-care benefits to employees were extended most readily — to hard times. Cars weren't selling, consumers weren't buying, jobs were being lost, and the bottom line was falling apart.

Corporate board members asked: "How can we continue to reward stockholders for putting their equity into this business?" And the corporate treasurer, who for years had been pointing out the dollars going into

health-care costs consume too large a chunk of those new dollars, there is precious little left to negotiate for salary, sick days, vacations, and other benefits.

The pressure to control capital costs is growing across the nation. In New York State the governor's Health Care Capital Policy Advisory Committee called for a moratorium on hospital construction for a year while overall dollar control and a rationing system were put into place. The report argued that capital costs cannot be considered separable from operating costs, since their payment ultimately comes out of the same public pocket: to the extent that operating costs can be controlled, there is more room for capital costs, but the overall total should not exceed the limit that society is willing to pay.

In addition, capital expenditures are viewed as contributors to growth in operating costs. Thus approval to create a new building or acquire a new machine must take into account not only paying the mortgage but the escalation in operating costs that might ac-

two other Chicago institutions most generous in service to Medicaid patients.

That kind of "dumping" has not developed in Boston; the city's hospitals have been discussing how to avoid it, but we may feel some pressures on us all from outside the city. Between October 1981 and February 1982, changes in eligibility requirements reduced the number of people on the Massachusetts Medicaid-AFDC (Aid to Families with Dependent Children) rolls by 25 percent. Local growth in unemployment adds further to the medically indigent, as both income and health-care coverage evaporate. One response by the hospitals has been the formation of the Commonwealth Health Care Corporation (CHCC), which plans to join together Boston's teaching hospitals and community health centers to achieve control of Medicaid expenditures without depriving the poor of needed medical care.

Though the idea of prospective reimbursement is reasonable, rate-setting is a tricky business. Congress is now in the midst of working through a federal program of prospective reimbursement for Medicare, for which Richard Schweiker, former Secretary of the Department of Health and Human Services (HHS), has proposed using DRG (Diagnosis Related Groups) categories. The limitations of this method include poor recognition of intensity of illness, and thus of intensity of medical or nursing need in some DRG categories. Even more disconcerting was the original intention of HHS to use a national average for each DRG, whereby the lowest-cost hospitals would acquire a windfall and higher-cost institutions suffer a payment below cost. That formula has now been modified to a considerable extent, although the final product has yet to emerge.

What was pernicious, it seemed to me, was the underlying implication that waste and inefficiency were concentrated largely among those institutions which had the higher per diem cost, although I know of no studies to justify that biased assumption. Equally distressing in the proposal was the inherent disregard of any innovation and excellence. The quality of Harvard medicine is not built out of the average capability of American medicine, nor can it be supported by a common denominator in cost.

*This year's constriction could be viewed as "belt-tightening," but the additional cuts mandated for fiscal 1984 and 1985 will likely require the sacrifice of specific programs, both clinical and non-clinical.*

health-care benefits, now produced a chart which showed the extraordinary rise of the health-care dollar going into every automobile, or whatever the company was selling. Of course, with fewer cars being sold, employee health-care costs per car produced would rise disproportionately. Furthermore, laid-off employees often retain health-care benefits, so the total of employee benefits per car might seem to have risen even further.

By the indices of the business — with real dollars coming out of the hide of the corporation — things were in a bad way. Something had to be done. The teeth were put into the bite on health-care expenditures.

Business has not been alone in its perceptions. Labor may look at the problem in the same way. With the economy as bad as it is, there are only so many new dollars forthcoming in the next contract negotiation. If

company the new facility or the new device. As this issue heats up in Massachusetts, I am concerned that there will be too little appreciation of the long-term capital needs of providers, particularly those with major scholarly programs and those with major social responsibilities, and too much in the way of passion for short-term cost control.

Another major issue is the care of the poor. In Illinois, hospitals were recently told that they would be reimbursed for significantly fewer Medicaid days this year than they had been the year before. Then the figure was revised downward once again. Many hospitals found or feared that they were using up their total allocation of Medicaid days well before the fiscal year was through. In response, Medicaid patients were refused by these hospitals and transferred to Cook County, Michael Reese, and one or





Mitchell Rabkin

I am reminded of a comment made by a classmate of mine, Hugh McDevitt '55, a brilliant physician-scientist now at Stanford. After receiving an award for scientific excellence from the Association of American Medical Colleges, McDevitt commented to the audience: "When I finished medical school, I didn't know quite what I wanted to do. I was a good house officer, but there was not evidence that research was my career and that the achievements I've made were to be forthcoming. My break came when one of the academicians at the Brigham, chatting with me about my plans, invited me to come work in his laboratory. I did that and after a couple of years, things caught on."

The significance of that anecdote is that the physician offering him the job happened to have the resources to do so. In his budget, there was leeway to invest in a young person, knowing that it might or might not pay off. Had those resources not been there, the opportunity and the gain for science would have been missed. To grow a good stalk of corn, you must plant more than one seed. That prudent generosity of resources which makes for quality is in danger of being eroded.

I will close by quoting an article by Victor Fuchs, "The Battle for Control of Health Care," published in a new journal, *Health Affairs*, edited by John Iglehart. The battle he sees pits *university* physicians and hospitals against *community* physicians and

hospitals. The university medical centers are facing very difficult times. Biomedical research funds are flat or falling; medical education support is dwindling and, increasingly, the university medical centers are looking to patient care to shore up their revenues. At the same time, these centers dread the notion of having to compete for patients in a tight economic environment. In many cases their concern is well justified. When it comes to delivering bread-and-butter care, the chances are that the community physicians and community hospitals can render this care less expensively.

Significant as this issue may be, it pales compared to others. Fuchs writes:

The most significant battleline emerging is between practicing physicians and *management*. By that I mean the inevitable clash between a fiercely independent profession and a management structure that seeks to gain firmer control over what doctors do. Traditionally, health care has been controlled by physicians—sociologist Elliot Friedson called it "professional dominance." Any analyst who looks at health care from the outside is always in awe of the extent to which, until recently, physicians have controlled the medical enterprise.... This control is being eroded, however, by the development of large institutions that require vesting significant power in the hands of management if the institution is to function successfully.

Why is there the need for that power of management? What makes it so important? Fuchs answers:

The first is the need for capital to finance growth. As medical technology grows more complex, capital requirements for practicing medicine, both in and out of the hospital, grow exponentially....

A second reason is the growth of government regulation and bureaucracy.

Larger organizations have more effective mechanisms for dealing with bureaucratic phenomena....

The third reason for the growth of management is what I would call true skills of management—the ability to organize complex technology, bring together different people from different professions to deliver service as a team. Every large organization, for-profit or nonprofit, needs these skills. Physicians, on the whole, do not like this trend toward larger management-dominated enterprises. Most would prefer to maintain physician dominance over health care. But it simply will not be possible for physicians to dominate medicine in the future as they have in the past. I hope that physicians and management will work out compromises, will understand the legitimate functions and the legitimate concerns of each, and rather than engaging in bloody battle, will develop a unified and comprehensive approach that better meets the needs of patients and society.

The same thoughts have been expressed in Paul Starr's lucid volume *The Social Transformation of American Medicine*.

The compelling nature of these observations leads us in the hospitals to recognize the critical necessity of "socializing," as sociologists would put it, our chiefs of service and, in fact, all physicians. The clinical chief who does not recognize that he or she is in fact management cannot fit into today's hospital. The *role* of clinical chief is a management role and no longer simply part of the old academic master/apprentice phenomenon. The same holds true for *all* physicians: we are all top and middle managers. Without that appreciation, we shall fit poorly into the hospital organization of today and not at all in that of tomorrow.

Perhaps the greatest benefit to emerge from the activities that led to Chapter 372 lies in the growing recognition that all parties, not merely the hospitals and the physicians, have been responsible for the rise in health-care costs. You cannot lavishly dispense health-care benefits in business and expect to see anything less than comparable growth in health-care costs. In short, what happens in the corporate boardroom is reflected in the hospital operating room. Or, to put it a crude but graphic way, if we—the hospitals and the physicians—can be accused of having been at the trough, then the insurers, government, industry, and labor have been building it and filling it to overflowing! The lesson is that we, all a part of the problem, must all be a part of the solution.

# The Race

by Albert D. Anderson '52

*My goal was to establish a rehabilitation service in a black ghetto of half a million people.*



Physicians with chronic progressive medical disorders are in a race with time. They seek to reach a goal before they become so disabled that they cannot work.

My own race began at the age of 23, during the summer between my third and fourth years at HMS. Every year from 1949 to 1961 a group of Harvard medical students were invited by Dr. John Olds to spend the summer at Notre Dame Hospital on Twillingate, a small island off the east coast of Newfoundland. The men who had gone in previous years had chosen Howie Rasmussen, Jim Pittman, and me to go in 1951.

The hospital operated on a prepaid medical plan supported by the fishermen of the surrounding islands. There were four wards: one for children, mostly with tuberculosis; and three for adults, one for men and two for women. Dr. Olds and his assistant saved the complicated or elective surgery for the summer, when the Harvard students were there.

The life was rugged. A one-cylinder

open boat transported a fisherman, a nurse, and me from one island to another, from one family to another. On reaching an island I would clamber up the dock, black bag under one arm and textbook of pediatrics under the other, looking for the shanty filled with children of the island who were waiting to see *doctor*.

First the children would have to feel my skin and play with my hair because they had never seen a black man. Then we would get to the business at hand. Each mother had one or two children who in her opinion were sick. I would see them, and the nurse would give them medicine according to my prescription. In the evening we returned to the hospital, frequently an hour-long trip over open water.

It was in the evenings I first realized that something was wrong. As I washed my socks my right hand did not feel the hot water as did my left. Worse was the pain in my arms as I smoked one cigarette after another while waiting for mothers to deliver. But I was so busy in the clinic seeing patients (sometimes just pulling teeth) that I had no time to worry about my new sensations. I deferred attention to the problem until my return to school in the fall.

After that summer I was sure I had to be a surgeon. I enjoyed the immediacy of response and results in surgery. It is ironic that I should end my professional days in a field where response is often slow and results must be measured in small positive changes in the patient's functional status.

On my return to Harvard, I underwent extensive study on the Neurologic Service at the MGH. Finally I was told that I had intrinsic cord disease, but there was no specific diagnosis. I was permitted to start my surgical internship at Bellevue, and spent three years





*The physical therapy gym of the Department of Rehabilitation Medicine at Harlem Hospital Center in its old quarters (left) and in the new Albert D. Anderson Wing*



at that hospital, working primarily with trauma.

When my arm pain persisted, a neurologist made the diagnosis of syring and suggested that I give up a surgical career. Accepting his advice, I spent two years training in internal medicine at Montefiore Hospital. There I met an older physician who appeared to know something about every medical problem. His specialty was called rehabilitation. I made the usual rounds with the chief of internal medicine, showing him classic cases of heart disease, uremia, and conventional problems of pain. I began to consult the older physician, however,

concerning my most difficult and unusual problems. He proposed different ways of studying such patients, reaching conclusions that none of the other attending physicians had even considered.

When I completed my residency it seemed natural to work for that older physician, Karl Harpuder. I was not sure what this business of "rehabilitation" was all about. I spent my days seeing people with arthritis, with paraplegia or quadriplegia of traumatic or neoplastic origin, people no other service wanted or could handle.

In 1966, after I had been with Dr. Harpuder three years, it was time to fly

on my own. I went to the 1,000-bed municipal hospital in New York that had been my source of inpatients. My goal was to establish in Harlem a rehabilitation service in a black ghetto of half a million people. My own disability had by this time progressed so that I went to Harlem walking with an ankle brace and a Lofstrand crutch.

The administration of the Harlem Hospital Center had not heard of my specialty, which worked to my advantage: I was given the freedom to make decisions I felt appropriate. I managed the outpatient clinic, while the inpatients were the responsibility of a fellow I had trained at the Montefiore.

*Occupational therapy room at Harlem Hospital: old quarters (right), and new facilities in the Anderson Wing*



We established our first treatment area in an old deteriorated building one city block from the main building of the hospital.

Every morning my assistant and his troop of therapists went to the old building. Their accomplishments soon impressed other doctors. A senior physician gave up beds on his service to make room for parallel bars. The Orthopedic Service gave us space in which to work. The orthopedic residents became so involved that they began to write their own rehabilitation orders. They spent their free time in a cramped office that we had partitioned off at the end of a hallway.

Ours was not an elegant service. In dark stairways we taught our patients to climb stairs. They learned their toileting in the broken makeshift toilets that we converted with grab bars and

elevated seats. We were allowed to hire a highly experienced rehabilitation nurse who could supervise other nursing staff. We were also assigned a staff nurse to train in rehabilitation on our service at Harlem, at the Institute of Rehabilitation Medicine, and at Montefiore's Loeb Rehabilitation Center. She had been a medical charge nurse at Harlem Hospital for 20 years. When the supervisor introduced new ideas, the staff nurse brought them to the wards. The other nurses respected her. They could not tell her that something could not be done. She knew that it could.

Finally, a new building for the Harlem Hospital was constructed in 1969. My chairmanship of the construction committee led me closer to the medical and surgical services, and when the building was completed, a rehabilita-

tion medicine inpatient service was established. Speech, occupational, and physical therapy, vocational counseling, and psychological services became available to patients on all floors of the new hospital. There was also a new service: organized restorative care for the disabled child. We had a staff of six full-time and several part-time physicians, all board qualified. I like to think that with the exception of some physical therapy, organized restorative services might otherwise never have come to the Harlem community.

By 1970 I was wheelchair bound and no longer could examine patients without assistance. The progress of my infirmity forced me to withdraw from the active leadership of the department in 1979, although I continue at the hospital in a teaching role. The race is over. □



# Aequanimitas Necessitans

by Farrokh Saidi

*"Iran is a country of many mountains but few enthusiastic mountaineers. Perhaps the fatigue of ever seeing forbidding and unrewarding peaks on the horizon has dampened the summit-conquering spirit of the people. But, mountains are there to be climbed, and, someday soon, with patience and persistence, problems in Iran will be solved."*

Thus Farrokh Saidi concluded *"The Return of the Native,"* a discussion of his difficulties and successes in improving health care for his native country's many poor people, in the Spring 1966 Bulletin. Since that time, Iran has experienced a tremendous revolution, and Saidi has observed the process, recording his impressions without waiting for the dust to settle.

"I want to write about my impressions of the revolution now, for I may not be around to say anything when it is all over," he explains. "As in all major revolutions, it is impossible to predict who will survive. Moreover, since writing maketh the exact man, I would like to organize my thoughts on paper."

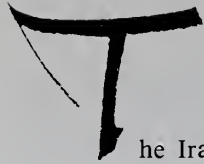
*"I have another reason to write. While we are cut off from all foreign sources of medical literature, I still receive the Harvard Medical Alumni Bulletin. I can do no less than to send something to the Bulletin's readers."*

Before returning to my native country at the end of my surgical residency at the MGH, I asked to see the chief, Edward D. Churchill, to thank him for my training in the United States. He was most friendly, gave me useful advice, and ended with the startling remark, "A revolution in Iran is long overdue." That was in the fall of 1960. Eighteen years later we had our sweeping revolution, which overnight replaced 25 centuries of monarchy with the Islamic Republic of Iran.

In some peaceful future I may be asked, "What was the Iranian Revolution really like?" If I have survived, I may answer calmly, but at this moment I can only look backward with perplexity, and forward with foreboding. I have an array of blurred impressions, a series of gripping experiences. I am caught up in a vast political storm of historic proportions; the fact that the turbulence is far from over only heightens my present inner tension. To talk about it in a detached manner would be to deny reality; to champion a particular cause would be to overstep the bounds of prudence.

I have no inside information: as a former ranking official, and now a middle-aged physician, I hardly expect to be taken into the confidence of the present regime. As a close bystander I find it difficult to put the whole process into any clear frame of reference. Revolutions are compared by social scientists to clear-cut clinical entities with repetitive and shock-provoking stimuli. The exact pathophysiology becomes obvious at autopsy, not before or during the actual illness.

*One must be familiar with the role of religion in rural Iran to understand that a ferment, no matter how begun, can easily be transformed into a holy war.*



he Iranian Revolution of 1978 was inevitable. Seen through the eyes of those whose fortunes had risen during the former regime, it was a catastrophe. Seen from the religious fundamentalists' perspective, it was the dawn of righteousness, a great chiliaristic epoch. The established elite, the struggling upstarts, and the newly affluent middle class knew that something was coming. At gala parties of the rich or in the fly-infested mud huts of peasants, the cry "come the revolution" was bandied about when no suspecting Savak agent was within earshot. Even the shah must have known, for two decades earlier, in order to forestall a Red revolution, he launched his White Revolution. The long-awaited event took the color black, symbolic of the spirit of Islamic martyrdom.

Was the Iranian Revolution really the expression of national sentiment? Some have alleged that it was the work of superpowers, which would not be without precedent. The progress of the Arab states 50 years ago, for example, is said to have been obstructed when (according to recently released state papers of the British Foreign Office) vast sums of money for that purpose were allegedly put at the disposal of T.E. Lawrence—whom I once admired as a champion of the Arab cause.

As for the national sentiment behind the Iranian Revolution, I can answer from personal experience. In early 1978 I traveled extensively through the provinces while managing a program of continuing medical education for doctors in outlying areas. It was clear that the whole country was restive. Protests, once started, gained the momentum of an avalanche. People in such faraway places as Yazd,

Tabas, and Jask seemed to know what was going on.

One must be familiar with the role of religion in rural Iran to understand that a ferment, no matter how begun, can easily be transformed into a holy war. What may have started on secular terms took on a powerful religious mystique. Scores of unarmed young men and women willingly fought to be killed and gain the exalted state of martyrdom, strange as this may seem to Westerners.

During the last crucial days of the fighting in Teheran, our hospital received its share of casualties. The resident staff, nurses, and administrative personnel outdid themselves in caring for the wounded. Their tireless efficiency was totally different from the customary apathy of government institutions.

In the early hours of one of the last days of the fighting in Teheran I was sitting in our hospital ambulance in a small alley waiting for two of our nurses. It was a cold, damp morning and a gentle fog lingered on. An old woman clad in black chador approached us haltingly. She seemed to want to be certain we were hospital personnel. Finally she came very close and asked if she could donate her blood for the injured at our hospital. It was then that I felt the revolution had the support of the masses.



n the early phases, few people doubted that soon it would all be over. We have moved through the whole gamut of human emotions, from exhilaration through anxiety, bewilderment, depression, disillusion, bereavement, and we are still clinging to hope.

To have lived in this land and to have known it well is to realize that

whatever happens is but a passing phase of a durable phenomenon called Persia. Yet as I think back to the pre-revolutionary days, I wonder that this "island of stability" could have been so rapidly swept over by an ocean of turmoil. Inescapably the history of this ancient land begins to unfold. A drawn-out drama of armies, wars, conquests, invasions, oppressions, and plunder, followed by rise to imperial heights, is played out in endless succession. In all these historic convulsions, countless innocents perished. Stability is a word that no Persian could ever grasp.



ars are fixed ingredients of all major revolutions and ours has been no exception. Personal tragedies and the suffering in terms of lives lost and bodies maimed was forcefully brought home to me during my two rotations as military surgeon at first the southern and then the western front, during the present Iran-Iraq armed conflict. I take pride in the courage and stamina of the Iranian fighting man. But the deliberate attacks on towns and border villages are appalling in this war, and have left an indelible abhorrence of any war in my soul.

I shall never forget 70 bleeding, dismembered, or dead children, young women, and elderly folk brought to our Air Force Hospital just outside Dezful. These poor defenseless people had been hit by a long-range Iraqi missile as they gathered around the marketplace one Saturday afternoon exactly where I had been only a few hours earlier. For the next three days and nights I was depressingly absorbed in amputating children's limbs, resecting bowels, debriding wounds, or



*Even the most dedicated revolutionaries are respectful towards members of the medical profession, perhaps because physicians reflect a positive involvement. But the doctor had best be apolitical.*

helplessly closing eyelids of fatally wounded mothers and their youngsters. Not a single wounded soldier was brought in during those tragic days.

The deliberate carnage among the Iranian civilian population, something not reciprocated by Iranian forces upon the Iraqi civilians, has strangely enough raised no protest in the Western media. This silence, while everything else about Iran receives ample coverage, provides evidence that the Western media system follows double standards. Real truth does not seem to exist anywhere.

A large segment of the population in our part of the world has reached the age range of 15 to 25 years. Their physical energy and quest for deep moral values in the birthplace of three major religions has created an atmosphere ripe for revolution, and the pent-up energies of the masses have reached explosive levels.

Who are the real rank-and-file revolutionaries? There are all sorts, varying with the individual's background, understanding of the issues involved, and the depth of devotion to the cause. My impression is that, for the most part, revolutionaries are extraordinarily sensitive to social injustices and have a burning desire to rectify them here and now. Perhaps they recoil against past excesses. The evolution of social justice is not an orderly process.

Having been amply warned about the revolution, having seen the gathering storm and watched it explode, I am still baffled as to what really happened. It was a real shock to many Iranians, a jolt to their sense of values. The splendor of the royal courts suddenly lost its brilliance. Many of high rank

could not believe that the revolutionaries would take things seriously. They found out how mistaken they were.

Revolutionaries do not tolerate affected superiority or conceit in any form. They hate anything that smacks of aristocracy: witness the French Revolution. It is foolish and outright dangerous to pander to revolutionaries, for they are deeply suspicious of any form of hypocrisy. Among the genuine are, of course, a few opportunists, and there are those who reach beyond the limits. If fearlessness is a measure of devotion, their reckless defiance of danger is astounding. Fortunately, even the most dedicated, I have noticed, are respectful toward members of the medical profession, perhaps because physicians reflect a positive involvement, a commitment to helping the needy. But the doctor had best be apolitical.

Why so much hatred for the West and non-stop exhortation to rise against the superpowers? Has Iran really been exploited by the Western powers in the past? A little knowledge of human nature suggests that it would be ingenuous to think otherwise. There is nothing in the East-West relationship over the last three centuries to refute the assumption that the driving motive of the West has been material gain. In science and the practice of medicine, the international record is more encouraging: altruism has been the underlying theme of medical care, unchanged since ancient times, and unrestricted by ethnic boundaries. It would be a sad day if nations guarded their medical knowledge as selfishly as their gold supply or oil resources.

How does the medical profession of Iran fit into the revolutionary scene? Hardly a cabinet since the turn of the

century has been without a few doctors as members. Traditionally, university chancellors have been physicians, and as a whole the medical profession has represented the intelligentsia of Iranian society.

In the present supercharged atmosphere of self-criticism, we can conclude from the recent past that Western-educated Iranian physicians could have done more for their countrymen and less for themselves. Too few American-trained doctors have brought back concepts of teamwork, intellectual honesty, hard work, and uncompromising interest in patients' welfare. Too many have willingly accepted the vicious economic rat-race. Survival has been a necessity, of course, and in an economic avalanche it has been impossible to be a mere bystander, but a physician should not transgress the boundaries of propriety, no matter how great the pressure or temptation. I recall with embarrassment the eagerness with which some of my former colleagues at a medical school in Shiraz jumped into transplantation in deference to direct orders of a politically ambitious university chancellor.

Traditional social bonds break in a revolution as people totally preoccupied with self-preservation find less time for others. This is hard on the socially voluble Iranians. When old friends meet accidentally these days, their surprise is that of survivors of some shipwreck whose makeshift rafts have by chance collided. There is a moment of genuine elation as each inquires about former friends, seeking assurance that all can't be bad since some seem to have weathered the storm. The next wave tosses the two

*When old friends meet accidentally these days, their surprise is that of survivors of some shipwreck whose makeshift rafts have by some chance collided.*


rafts apart, dispelling any doubts that a catastrophe has happened.

In stressful times it is only natural to seek solace in spiritual guidelines and philosophic perspective. My HMS experience teaches me to reach for Osler's *Aequanimitas*. I also draw upon the immensely rich and beautiful Persian literary heritage. I recall one section from an ode by Kallim of Kashan (d. 1651 A.D.):

Acquire such disposition that thou canst get on with the whole world,  
Or such magnanimity that thou canst dispense with the whole world.

There is a much older and more pragmatic fragment from Anwari (d. 1191 A.D.):

"Have patience; patience will perform thy work  
Quickly and well," to me a comrade said,  
"The water to the river will return,  
Thine aims shall speed as never they have sped."  
I said, "Suppose the water does return,  
What boots it if the fish meanwhile be dead?"

oes a medical education prepare one for a revolution? I do not intend to propose any specifics for the Curriculum Committee. The reactions I have seen among colleagues have been more the expression of individuals than of their medical education. A few opportunists have tried to jump out of obscurity only to be washed back when the next political tidal wave has come in. Some escaped early in the game to save their necks. Some, professionally well established, ran away. A comforting number have chosen to stay. Some of these were relieved of their posts, and a few even saw prison terms, but none has

lost his faith in the righteousness of his professional calling.

The lesson is clear. No doctor can rightfully claim to be of substantial help to others unless prepared to suffer in the process. This may mean no more than forgoing professional respect. It may mean a far greater sacrifice. A fortunate majority of physicians throughout the world never has to meet such stern tests. But those who have, and managed to earn a passing grade, have been through a self-assessment program for which no credit hours are recorded and no certificates issued. A missionary medical practice, even a brilliant career such as that of Albert Schweitzer, falls outside my definition. The missionary has chosen credit in the hereafter.


There is a benefit in a medical education that is useful in times of revolution: the number of medical activities to be pursued provides a ready escape mechanism. It is an effective antidote for all sorts of stress. Remove most modern technology and patient care can be absorbing. Sometimes it means no more than putting one's finger in some medical dike and just holding still.

These have been hard times for us. The realities of revolution have made it clear that many developmental projects were ephemeral, although pleasant and often profitable experiments. True development is a matter of education and morality; in Iran the latter has always been based on the standard of leadership. Now the people must find leadership. This takes time, but perhaps a shock can hasten the process. There may be no other way to bring the romantic Persia of Omar Khayyam into the world of international reality.

No nation has a monopoly on good will and no nation has yet committed the ultimate evil. There are good people and bad in Iran as everywhere else,

but in the long run the good will have sway over the evil. Thus spoke Zarathustra, the oldest of all true Iranians.

What about the future? The pre-revolutionary policy of sweeping economic determinism, actively encouraged by the West, had muted other aspects of Iranian life, many with deep roots in the dim past. Now pent-up values, ideas, attitudes, mores, myths, and unexpressed aspirations are aching to surface. All will have to do so before a rational picture emerges. A national resolve has arisen, a groundswell of public opinion. Cynics deny its depth and breadth, but properly channeled it may be the solid foundation on which to build a country.

 cannot accept the idea that this ultra religious land of the Persians and the Medes is about to vanish. In rebuilding we shall face mountains of difficulty, more formidable than the tall ranges encircling our land. In medicine the task will be to extend the benefits of modern medical care to the staggering health needs of many people. This is the problem we had before the revolution, but now it is greater because resources in terms of men and material have shrunk. To think about it makes me feel like a half-exhausted Sisyphus, but I am sure a new generation of Iranians will be equal to the challenge.

There is nothing like a revolution to pull one out of a trance, and there may be no remedy but a good dose of *Aequanimitas*. □

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# Family Medicine, Boston Style

by Edward C. Atwater

**I**t was a splendid spectacle. Though there was no martial music, grand parade, or ecclesiastical regalia, there were representatives from most of Boston's oldest families. They had assembled in Massachusetts Institute of Technology's new Huntington Hall—a site now occupied by the New England Mutual Life Insurance Company on Boylston Street—to hear an

address by Oliver Wendell Holmes celebrating the centenary of Harvard Medical School and the opening of the school's elegant new building just down the street.

Besides old Dr. Holmes, who had just retired from a 36-year career as professor of anatomy, there were Henry Jacob Bigelow, Holmes' faculty colleague and until recently dean of New England surgeons, and numerous Bowditches, Fitzes, Minots, Cheevers, and the non-medical Lees. Descended from builders of the Bay Colony, these Bostonians had done it on their own: the building they were about to dedi-

cate and the school itself were their creations. No taxpayer's dollar, no outside money had been called upon to reach their goal, set in 1874, realized in 1883. Nor, for that matter, had they ever found it necessary to seek faculty from beyond their circle. What's more, ninety percent of HMS's students came from New England.

At the dedication Holmes reflected a sense of continuity with the school's past by recounting his memories of the three original professors: Benjamin Waterhouse, John Warren, and Aaron Dexter. Dr. Waterhouse he characterized as a man who "had some learning

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which he was disposed to make the most of as perhaps we all are if we have it." Chemical theories were crude in those days, but the chemistry lectures given by Dr. Dexter, Holmes recalled, were an entertaining mixture "of startling precipitates, of pleasing changes of color, of brilliant coruscations, of alarming explosions, and above all of odors innumerable and indescribable." When an experiment failed, Dexter would serenely say, "Gentlemen, the experiment has failed; but the principle, Gentlemen—the principle remains as firm as the everlasting hills."

Then Holmes reviewed the innovations in medicine during the century just past, listing from the first half Xavier Bichat's organ-focused anatomy, the recognition of distinct motor and sensory nerves by Charles Bell and François Magendie, the introduction of vaccination by Edward Jenner, the stethoscope by René Laennec, the description of renal disease by Richard Bright, and the segregation of diphtheria from other fevers. To these he added, from the second 50 years, the contributions of the microscope to the cell doctrine and the identification of microorganisms; the recognition of the

reflex arc; the introductions of anesthesia and the clinical thermometer; and therapeutic advances in ovariectomy, lithotomy, and the humane treatment of the insane.

Another great change had occurred within HMS, a change that made the new building necessary. In 1872, President Eliot, with the support of three younger members of the medical faculty—James C. White, Calvin Ellis, and Henry W. Williams—had introduced and subsequently sustained fundamental changes in the manner of educating physicians. Holmes later confessed some admiration at seeing "a young man like Eliot, with an organized brain, a firm will, a grave, calm, dignified presence, taking the ribbons of our classical coach-and-six, feeling the horses' mouths, putting a check on this one's capers and touching that one with the lash..." Eliot, he wrote, "had turned the whole University over like a flapjack."

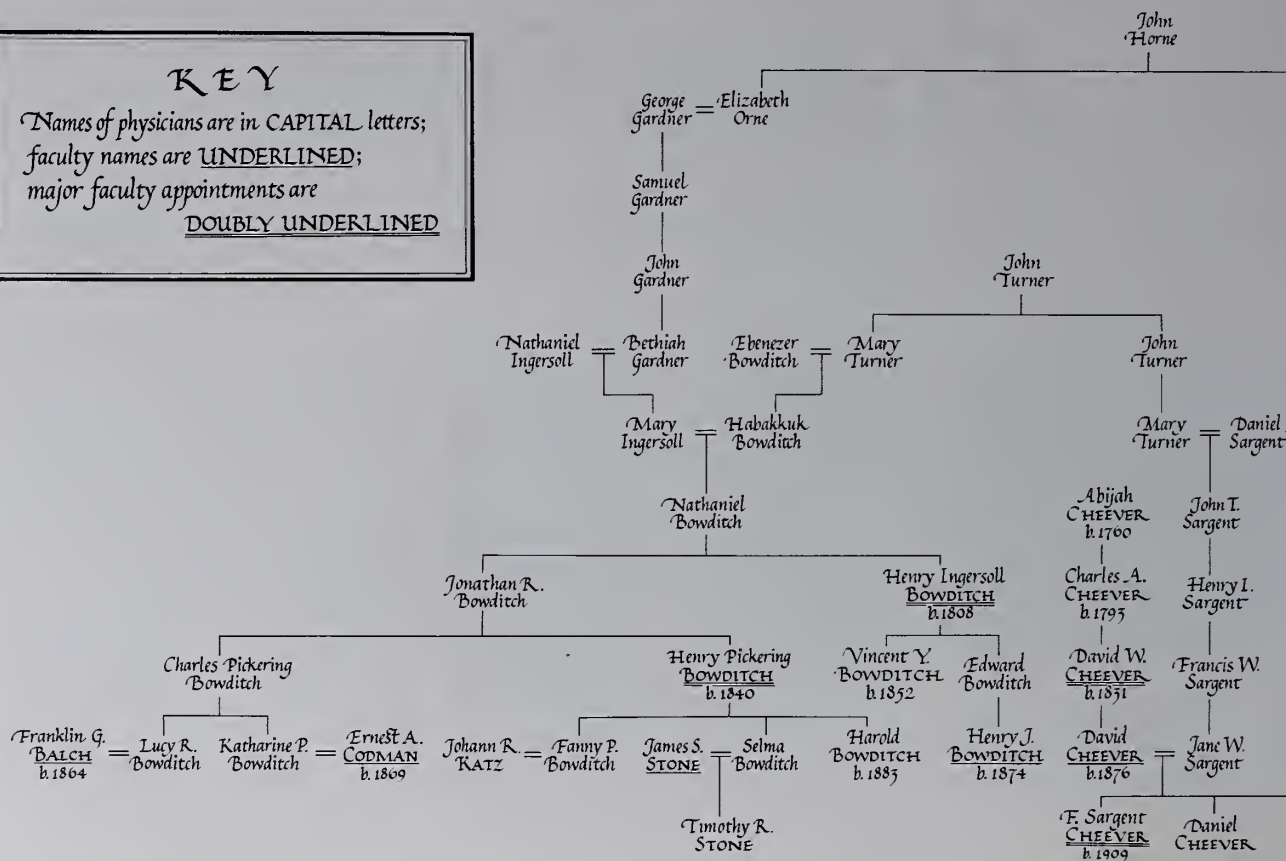
In 1872 written examinations were introduced to test the literacy of prospective students. The course of study was extended, laboratory experience in physiology joined anatomy as a hands-on course, passing written examinations was necessary for graduation,

and the University took over finances. Instead of operating a proprietary enterprise in which each professor collected his own lecture fees directly from students and then helped pay the costs of operating the school, the faculty became salaried, and the University assumed responsibility for the inevitable leak in the roof.

Surprisingly, these changes did not have the dire effect that even the most optimistic had expected. It was common sense that when a school attempted reform it lost many of its students and hence its income, a fact that led old Dr. Holmes to comment that it was unreasonable to expect a school to commit suicide for the sake of reform. Eliot's success was made possible by the distinctive characteristics of the prosperous Bostonian, characteristics summed up by social historian Cleveland Amory in the phrase "wholesale charity, retail penury." Student enrollment dropped from 301 in 1870-71 to a low of 170 in 1872-73, a decrease of 43 percent, and then started upward again. A deficit of \$2,756.99 accumulated, but was soon amortized through public subscription. Almost at once it became apparent that larger quarters would be needed.

## KEY

Names of physicians are in CAPITAL letters;  
faculty names are UNDERLINED;  
major faculty appointments are  
DOUBLY UNDERLINED







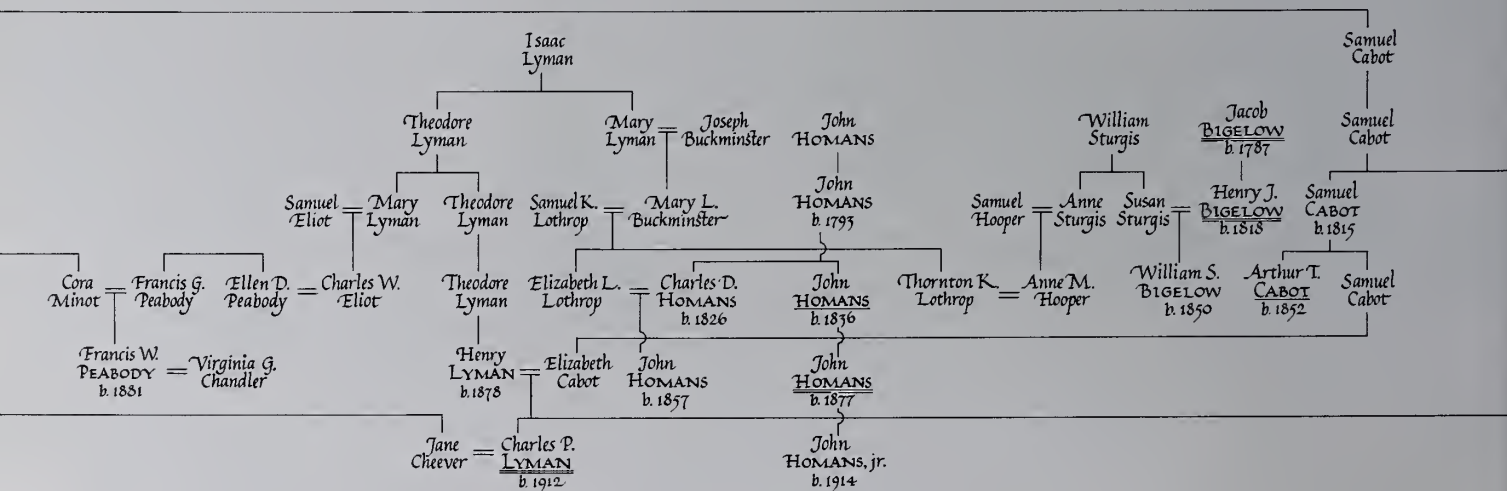
By 1876, only 10 American medical schools had any income-producing funds and Harvard was far and away the leader with an \$84,365 endowment. The \$5,513 generated by endowment that year made up 13 percent of the operational budget, a proportion approximately the same as today. Other schools, as would Harvard, would later receive enormous gifts from men like John D. Rockefeller, Andrew Carnegie, Oliver Payne, and Johns Hopkins, but the long-established tradition of *pro bono publico* among the leaders of Boston gave Harvard a successful lead of two decades in the reform of medical education with broad and steady support.

Even more unusual than the community's record of giving was its record of producing talented physicians, often in several consecutive generations. The pedigree accompanying this article includes 88 physicians in seven generations of interrelated Boston families. The first two physicians were John Cabot and James Lloyd, both born in the early 18th century. The Cabot

The generation born between 1793 and 1821 produced eight medical school faculty members, all of them of major rank. The next generation (born 1826-1867) had 15 faculty members, eight of whom were full professors, at a time when there were but a dozen or so of full professional rank. The generation born after the Civil War (1867-1896) provided 17 faculty members, of whom seven had major appointments.

In 1890 the HMS faculty was composed entirely of Bostonians, many of whom were related to each other one way or another. This family domination did not go unnoticed. Though there does not appear to have been any public dispute over the professors, there was about the selection of house pupils at the Massachusetts General

of the Boston Medical Family,





and Boston City hospitals. During the 1880s, the *Boston Medical and Surgical Journal*, predecessor of today's *New England Journal of Medicine*, carried correspondence regarding alleged nepotism in the awarding of house officer positions. There was truth on both sides; eventually the issue faded from public notice.

It was not until 1892, when William T. Councilman and William Henry Howell joined the faculty, that outsiders breached the ramparts. Councilman, who came from the University of Maryland, served as Shattuck Professor of Pathological Anatomy for 30 years, but Howell remained only a year before returning to Hopkins as professor of physiology. In the 16 years that followed, a steady influx of "non-family" men joined the faculty, at least in the rapidly expanding pre-clinical departments. Harold C. Ernst, Harvard-trained but born in Cincinnati, became professor of bacteriology in 1895.

The following year, Theobald Smith, a graduate of Albany Medical School, was installed as professor of comparative pathology. In the first decade of the 20th century, Walter Bradford Cannon, Otto Folin, and

Milton Rosenau, all outsiders by birth and—except for Cannon, who attended Harvard—outsiders by training as well, assumed respectively the chairs of physiology, physiological chemistry, and preventive medicine and hygiene. Rosenau was the first Jew to become a member of the senior medical faculty. By 1909, five of seven chairs in preclinical sciences were occupied by men from outside Boston. The only "family" remaining were Charles Minot and Thomas Dwight, professor of anatomy. Dwight would retire in two years and Minot not long thereafter.

With the clinical faculty, of course, it was quite different. In controlling the beds, the hospital trustees determined who the professors would be. When Henry Asbury Christian, just two years out of Hopkins, came to Boston, it was necessary to give him a post at the Carney Hospital. With the understanding that he accept the deanship in 1908, he was made Hersey Professor of Physic and became physician-in-chief at the soon-to-be-built Peter Bent Brigham Hospital. Thus came the first outsider to the clinical ranks.

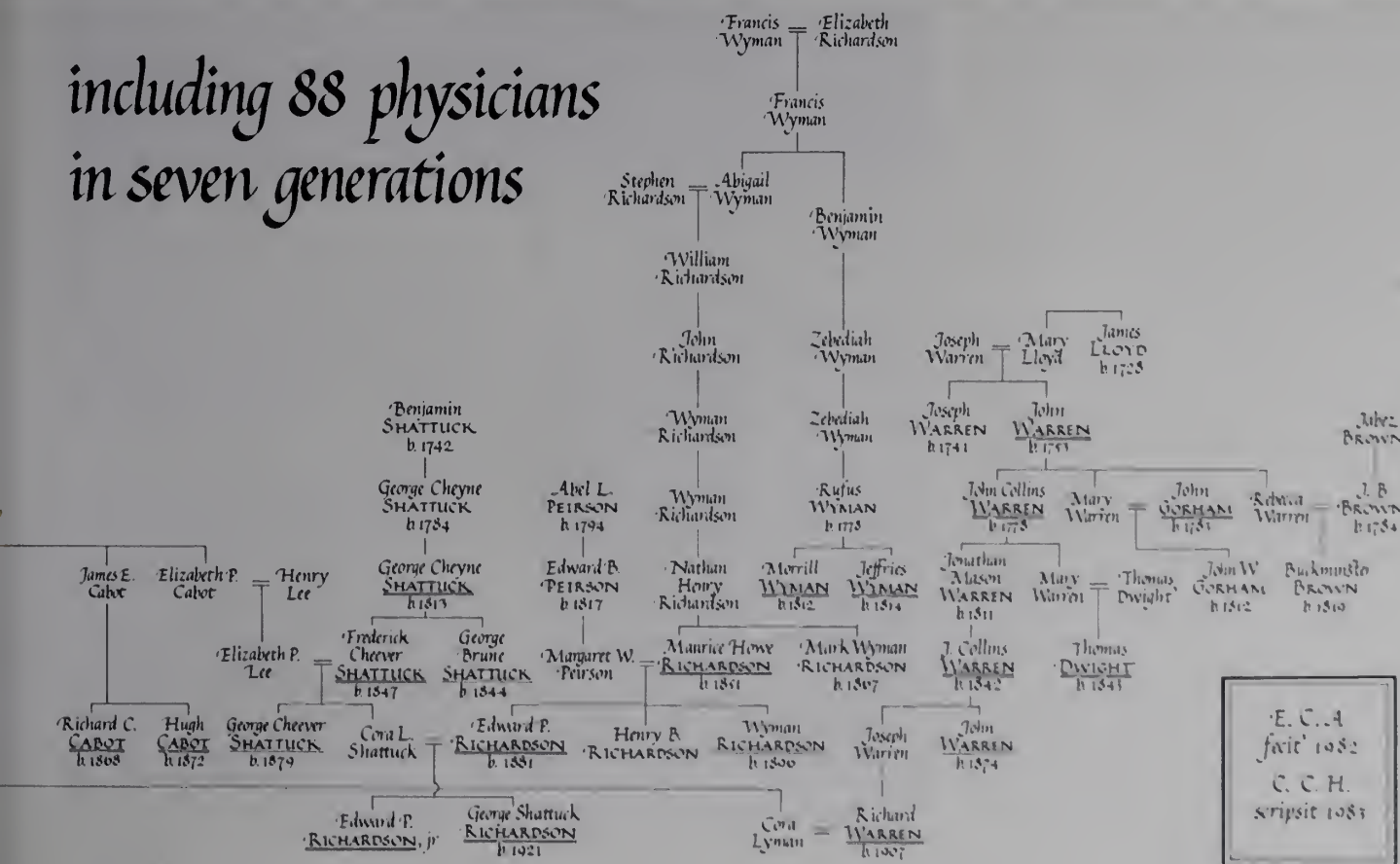
Four years later David Linn Edsall,

a Pennsylvania graduate whose attempts at reform while professor of medicine at Pennsylvania and subsequently at Washington University were aborted by great resistance, came to the MGH as the Jackson Professor of Clinical Medicine. This he did with the consent and cooperation of the "family" man and heir apparent to the post, Richard Clarke Cabot.

With the expansion of the laboratory science faculty, the Boylston Street building became inadequate. By the end of the 19th century, with new discoveries and the growth of the full-time laboratory faculty, space needs unanticipated in 1883 were pressing if significant research were to be done by the faculty. The move to Longwood Avenue provided this space.

Unlike the Boylston Street building, built entirely with Boston money, the "great white quadrangle," though supported generously by the local citizenry, required bigger money than could be found locally, money from oil, banking, and railroad fortunes of national scope. The buildings were the gift of John D. Rockefeller, J. P. Morgan, and Arabella Huntington. By 1920 the faculty included hardly any

including 88 physicians  
in seven generations



*The long-established tradition of pro bono publico among the leaders of Boston gave Harvard a successful lead of more than two decades in the reform of medical education.*

old family Bostonians, and more than half the students came from west of the Hudson River.

That "family medicine" had existed in the first place, and that it was so good, is remarkable. It was the result of a tightly knit society with a strong religious and intellectual tradition, an expectation of community service from its members, and philanthropic support from those who prospered. In a town where women didn't buy hats because they had them, why would it be necessary to look abroad for medical professors?

Maybe it had something to do with the temperament of the medical Bostonian, which preferred the clinician's role to that of investigator. The French clinical tradition, so firmly established in Boston from the early 19th century, survived there long after the German laboratory tradition had become dominant elsewhere in America. Was it unacceptable to the Bostonian to be supported by money from outside, neither earned nor inherited?

A long tradition in Boston against what Osler referred to as "cloistered clinicians" can be documented. When the younger James Jackson returned to Boston after four years with Pierre Louis in Paris, he wanted to spend some years as full-time clinical investigator, but his father, the professor of medicine, opposed his plans on the grounds that he would be thought a dilettante. A generation later, William Sturgis Bigelow, shy and retiring son of the great surgeon, showed aptitude and interest in research during his five years of postgraduate study abroad in the laboratories of Ranvier, Pasteur, and Waldeyer. But his attempts to establish a private laboratory after

returning home were discouraged by his father, who wished him to be a surgeon.

Some found research distasteful on intellectual grounds. After hearing Edward Brown-Séquard urge medical students to use animals for experiments and to "train your mind to a careful observation of facts... [and] to draw conclusions," old Dr. Holmes observed that he "liked to follow the workings of another mind through these minute teasing investigations, to see a relentless observer get hold of nature and squeeze her, until the sweat broke out all over her and sphincters loosened—but could not bring [his] own mind to it."

The decline of family medicine came not from failure of the community's tradition but from a change in scale that affected all parts of American society. Immigration after the middle of the 19th century ended Boston's social homogeneity. Industry, banking, and transportation changed regional economies into national ones. In medicine the idea of organized research and the need to support it revolutionized the educational structure. At a time when most medical schools, including Harvard's, were regional and when Boston was still a cohesive community descended almost entirely from English forebears, its record in medicine may not be surprising. Today, though there are fewer of them, there are still worthy physicians from among the family group and they often choose to go elsewhere as others are now welcomed in Boston.

The changes that were to come within a single generation were probably little suspected by those who sat in Huntington Hall on that morning in October 1883. As they honored old Oliver Wendell Holmes and Henry Jacob Bigelow, and later walked down Boylston Street to dedicate and admire the elegant new school building, it would have been hard to conjure a vision of the school as it would be 30 years later: still another new home, with outsiders—both faculty and philanthropists—in dominant roles, and with accommodation between hospital-trustees and medical school. A combination of a new order of national prosperity and remarkable discoveries in biology had made it happen.

The next generation would see the coming of laboratory medicine to the bedside, the establishment of full-time clinical faculties, and an expansion of clinical research on the same scale that had taken place in the pre-clinical sciences a generation earlier. Harvard Medical School would leave its past, perhaps not low-vaulted, but surely home-grown, and become prima donna of the national stage. □

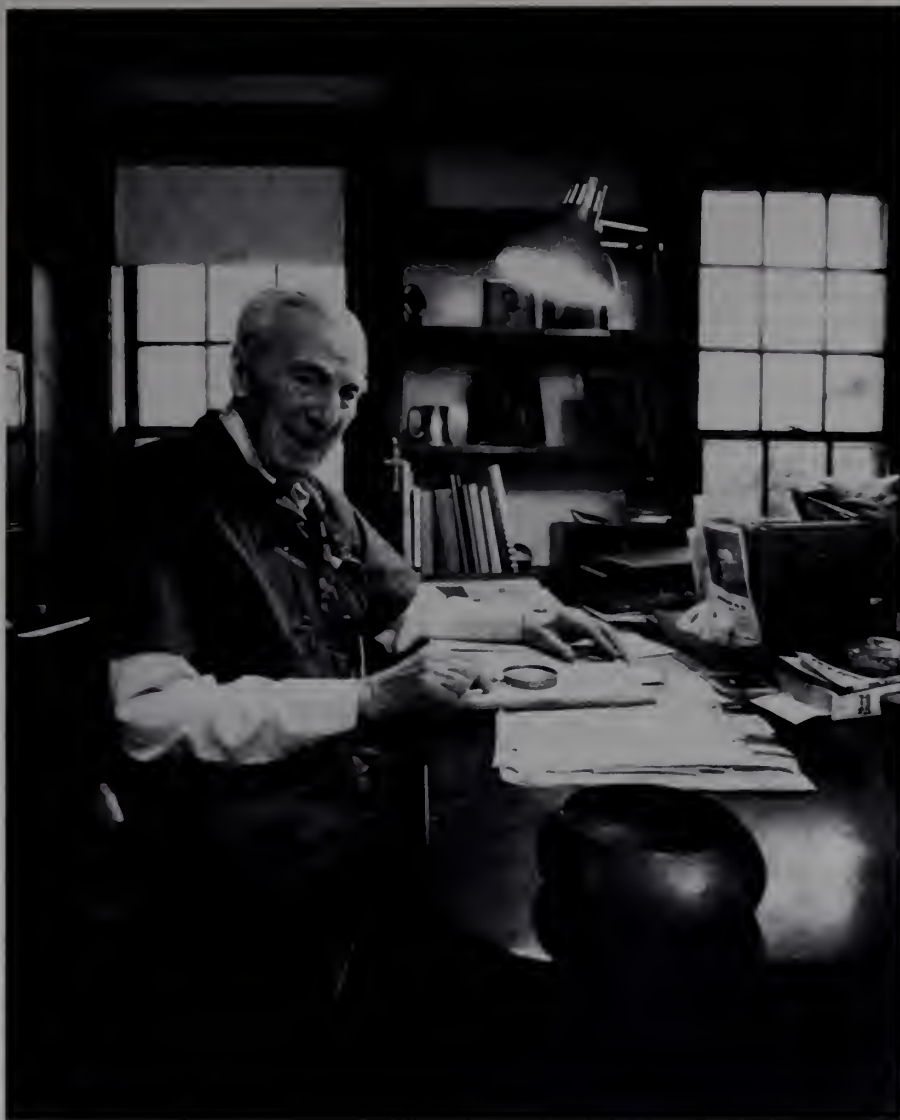
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*Author's note: Since the chart accompanying this article was prepared, a relationship to it of the Wesselhoeft and the Storer families has been identified. Three generations of Storers graduated from HMS: David Humphreys Storer (b. 1804), his son Horatio Robinson Storer (b. 1830), and his son Malcolm Storer (b. ?). Horatio's brother Francis married Catherine Atkins Eliot, sister of Harvard president Charles W. Eliot. D. H. Storer was professor of obstetrics and medical jurisprudence at Harvard 1854-68, and dean of the medical school 1855-64. The Wesselhoefts, Boston's most prominent family of homeopaths and leaders in the Boston University School of Medicine, included eight physicians, six of whom graduated from Harvard Medical School. Among them were brothers Robert and William, both raised and trained in Germany; Robert's sons Conrad and Walter, and Walter's son Conrad (1884-1962), who was professor of infectious diseases at Harvard (1940-51); and William's son William Palmer, and his grandson William Fessenden. William Fessenden Wesselhoeft's daughter Alice married Leverett Saltonstall, whose ancestor five generations earlier was Francis Cabot. I have been unable to ascertain the relationship to the others of George Palmer Wesselhoeft (HMS 1859; d. 1890).*

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*The author thanks Richard Wolfe of the Harvard Medical Archives, medical historian Elin Wolfe, and professor of medicine emeritus Mark Altschule for their help and advice. Special thanks to Gary Boyd Roberts of the New England Historic Genealogical Society for his help with the family pedigree; he identified the links that connect the Bowditches, Cheevers, Bigelows, and Wymans with the other families.*





# John Rock, Champion of Fertility Rights

by George Richardson

**T**he years of John Rock's (HMS '18) lifetime thus far have been witness to all the revolutions we have known, including some whose unrecognized seedlings may be all about us at this moment. We live in the aftermath of the Russian revolution of 1917 and the later Chinese revolution; in the Atomic Age, the Space Age, the Computer Age; in the new world of the molecular biology of the gene; and in an inchoate something called the sexual revolution.

As for the latter, the significant new element is not the freedom of libertines to be Don Juans (or Playboys), but the freedom of women to be persons, a point made in Loretta McLaughlin's recent book *The Pill, John Rock, and the Church*, which has in part inspired these thoughts. The endorsement of the oral contraceptive pill

by millions of women clearly reveals their identities to be those of sexual persons as opposed to those of progenitors. All ideologies have had to react to this still-unfinished revelation. In the process, the longstanding ambivalence of Christianity about the joys of sex have been revealed more fully than ever before, though it should not be forgotten that, historically at least, Christianity shares this problem with Judaism and with the Greco-Roman world.

Where ambivalence abounds, it would be wrong to expect a monolithic theology, even in that supposed monolith, Roman Catholicism. This is made evident in a work of remarkable scholarship by John T. Noonan, Jr., entitled *Contraception: A History of its Treatment by the Catholic Theologians and Canonists*. Noonan seems to see

*Katherine Dexter McCormick startled Hudson Hoagland, co-founder of the Worcester Foundation for Experimental Biology, by bursting into his office and asking, "What are we going to do about it?"—"it," she explained, being the impending world population crisis.*

not a revolution, but an evolution, in which theologians have adapted over time to successive revelations of biology. In his conclusion he alludes to some obsolete ideas and observes, "These opinions, now superseded, could be regarded as attempts to preserve basic values in the light of biologic data then available and in the context of challenges then made to the Christian view of man." He reminds us that some of the earlier challenges to Christian theology came not from advocates of sexual freedom but from advocates of total sexual repression.

Our own John Rock is of greater importance to the evolution of Roman Catholic theology than is suggested by the space accorded him in Noonan's book. The book is about thinkers, and Rock has been a doer. His first decade was the last decade of Queen Victoria, and he was 16 when President Theodore Roosevelt told Congress from his "bully pulpit" that "willful sterility is, from the standpoint of the human race, the one sin for which the penalty is national death, race death; a sin for which there is no atonement."

As a 19-year-old graduate of the High School of Commerce in Boston, Rock went to Guatemala and managed a United Fruit Company banana plantation, seeing Third-World problems firsthand. In college he followed Freud, and at HMS he considered going into psychiatry, but chose another young field instead: the 50-year-old specialty of gynecology. It was not until Rock was 10 years out of medical school that the gonadal sex hormones began to be isolated and defined, the role of the gonadotropins began to be understood, and the role of the hypothalamus was suspected.

Rock was concerned with infertility and what he called "pregnancy wastage." A book he co-authored in 1930 advised couples to try for pregnancy early so as to seize their best chances for success. Though he set up a Rhythm Clinic in 1936, his own investigations were broadly concerned with reproduction rather than with contraception. With Marshall K. Bartlett '28 he worked out an accurate histological dating of the endometrium. With Arthur T. Hertig '30 he isolated the earliest human conceptus ever seen.

In a series of collaborative observations of similar specimens, Rock and Hertig calculated the time sequence of

fertilization, ovum transport, and implantation. With his tireless co-worker Miriam Menkin, Rock was perhaps the first researcher to observe fertilization in vitro. Until 1944, when he abandoned surgery after suffering the first of six myocardial infarctions, he also worked on developing surgical techniques to correct tubal obstruction.

With the next year came "Albright's Prophecy," the complete description of an estrogen-progesterone anti-ovulatory pill, dropped by the wayside in an obscure journal by Fuller Albright '24. In *The Pill, John Rock, and the Church*, McLaughlin excitingly and accurately tells the story of how the pill was hatched. The prime movers were Margaret Sanger and Katherine Dexter McCormick.

In 1950 McCormick startled Hudson Hoagland, co-founder of the Worcester Foundation for Experimental Biology, by bursting into his office and asking, "What are we going to do about it?"—"it," she explained, being the impending world population crisis. Hoagland directed her to Gregory Pincus and John Rock. Pincus knew that progesterone could inhibit ovulation in rabbits, and Rock had shown that it worked in humans. Lacking, but not long in coming, was an orally effective progestational compound.

Among the cast of characters whose work influenced or overlapped with Rock's—and who are colorfully drawn in McLaughlin's book—were Miriam Menkin, who carried out the in vitro fertilization experiments and was Rock's amanuensis for many years thereafter; gynecologist Hannah Stone, long a pioneer for contraception, along with her husband, Abraham Stone; Anne Merrill, who with M.C. Chang carried out the assays of new progestational agents in Pincus' laboratory; Greek physician Angelika Tsakona, who, on a fellowship with Rock, examined the uterus and ovaries of women who had been treated with progestins prior to hysterectomy; Edris Rice-Wray, director of the U.S. Public Health Field Training Center and the Puerto Rico Family Planning Association and an invaluable ally in the clinical trials Rock and Celso-Ramon Garcia initiated in Puerto Rico in 1956; and Adeline Pendleton Satterthwaite, a medical missionary who conducted similar trials in the more primitive and difficult conditions of the village of Humacoa, in Puerto Rico.

Rock's indispensable life-partner



was his wife, Anna Thorndike Rock, a Boston Brahmin, who was also a Roman Catholic. She had majored in mathematics at Bryn Mawr, had gone to France in 1916 at the age of 20 as an ambulance driver, and married Rock when she was 29 and he 35.

Rock would not have become involved in the development of the pill if he had not believed that it was spiritually and morally right. He ultimately made his own confident contribution to theology in a book published in 1963 entitled *The Time Has Come: A Catholic Doctor's Proposals to End The Battle Over Birth Control*, in which, as McLaughlin phrases it, "he preached family love, monogamy, fidelity, responsibility, the nurturing of spousal bonds, and duty to the rearing and education of children"—all of these helped, rather than hindered, by the right use of conception control.

His credentials as a theologian were those of a devout Catholic, the husband of a Catholic wife, the father of five children, a fighter for human fertility, and a staunch advocate of the importance of the family. Along with his strong faith he has carried through life what his parish priest had told him when he was a boy in Marlborough, Massachusetts; "John, always stick to your conscience—never let anyone else keep it for you."

One thing Rock has been absolutely clear about is the value of sexual freedom for both partners in their marital relations. With his invincible faith in the goodness of God, the bounty of nature, and the efficacy of the sacraments, he comfortably ignores two millennia of theological discomfiture about sex. In addition, he carries his message with exceptional grace, aptly summarized by Robert W. Kistner, assistant clinical professor of OB-GYN at HMS, in McLaughlin's book: "He was such a stately, handsome man, impeccably dressed in a gray suit, dark tie and with that magnificent white hair. He looked like God himself standing there. No matter what he said, you would believe it."

He symbolizes and embodies fatherhood in a way no father of the church could duplicate. Possibly even more important is that John Rock is a kindly, lovable, and, at will, delightfully funny man. Is there anyone he has touched who would not conclude, as Kistner does: "He was the

most essentially kind man I have ever known, yet exhilarating and stimulating. Did I like him? I loved him!"

Within a few years of the Food and Drug Administration's approval of the pill in 1960, the tremendous number of women—including many Catholics—who began using it prompted the Catholic Church to re-evaluate its position on birth control. The secret Papal Commission on Population, the Family, and Natality, meeting in 1966-67, reportedly voted to recommend liberalization of the church's law on contraception. But in 1968 the papal encyclical *Humanae Vitae*, dismissing the commission's report along with those of liberal theologians, reaffirmed the church's prohibition on all "artificial" means of birth control. During these years—bitter ones for Rock—Harvard closed down the Rock Clinic, Rock's staunch co-worker Gregory Pincus died, and so did the "mothers of the pill," Sanger and McCormick.

The pill, of course, goes on. Its vast clinical trial, almost unthinkable under the conditions imposed by today's Internal Review Boards, has not eventuated in a burst of late cancers, but has turned out quite the other way around—through sheer luck, it must be admitted. Success is so great that we tend to forget that we are still far from having the perfect contraceptive. We can be confident, however, that research will lead to new revelations, and that ethicists will respond and theologians adapt.

For all of us who love and work for the human family, John Rock has been, and will continue to be, a leading kindly light. We wish him the comfort he deserves in his retreat in Temple, New Hampshire. We are grateful, with him, that the commandment of Genesis to "be fruitful and multiply, and replenish the earth" has been fulfilled. We pray, with him, that all our gains for humankind and the quality of human life may be preserved—that we may escape an atomic destruction whose uncertain human remnant would face the primordial problem, not of conception control, but of infertility. □

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*Rock "preached family love, monogamy, fidelity, responsibility, the nurturing of spousal bonds, and duty to the rearing and education of children"—all of these helped, rather than hindered, by the right use of conception control.*

# The Invisible Faculty

by Eleanor Shore

**T**his Bicentennial year would not be complete without an account of the contributions to Harvard Medical School by its earliest women scientists, some of whom conducted their research at a time when no women's names appeared among faculty listed in the directories, catalogs, or histories of HMS. Their contributions to science did not, however, go unrecorded in the scientific literature; nor did their struggles to obtain appropriate Har-

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vard titles go unrecorded in the archives of the University.

Among the invisible faculty who did research and some teaching at HMS in the late 1800s and early 1900s were neuropathologists Emma Mooers, Myrtelle Canavan, and Louise Eisenhardt; physiologist Ida Hyde; and biochemist Willey Denis. From the correspondence of President A. Lawrence Lowell, from tributes paid by colleagues, including Walter B. Cannon and Harvey Cushing, and from published papers and obituaries, these women scientists emerge as strong, if obscure, figures in the scientific community of their times.

**D**R. IDA HYDE—ACKNOWLEDGED by Walter B. Cannon, George Higginson Professor of Physiology, as being “in all probability the first woman to engage in scientific investigation in the Harvard Medical School”—had already gone to extraordinary lengths to enter the field of science by the time she reached HMS at the age of 39.

After a childhood in which her father left the family, and her mother's home and business were destroyed in the Great Chicago Fire of 1871, Ida entered the working world as a milliner's apprentice, a buyer and saleslady for a clothing factory, in order to

help support her mother and siblings. A chance exposure to Alexander von Humbolt's book *Humbolt's Views of Nature* triggered an interest in science, and she began at age 24 a tortuous route toward a scientific career by entering the College Preparatory Course at the University of Illinois.

Her academic pursuits were interrupted once more at age 25 when her brother became ill and help was needed at home. After teaching second and third grades in the Chicago public schools for seven years and helping with the Chicago Science in the Schools program, Ida entered Cornell University at age 31 to try once more to obtain a formal scientific education.

Graduate study at Bryn Mawr and research at the Marine Biological Laboratory in Woods Hole provided the background for a long list of firsts. She was the first woman to: conduct research at the Laboratory of the United States Fish Commission in Woods Hole (1893); receive a Ph.D. from the University of Heidelberg (*multa cum laude superavit*, 1896); do research at the Medical School at the University of Heidelberg; do research at the Naples Marine Station (1896); do research at Harvard Medical School (1896); be elected to the American Physiological Society (1902), only woman member until 1914; and be professor and head





*This photograph of Ida Hyde appeared on the cover of the December 1981 issue of The Physiologist. The issue contained several biographical sketches and an annotated bibliography celebrating Dr. Hyde as the first woman member of the American Physiological Society.*

of a major department in a coeducational institution, University of Kansas (1905).

Dr. Hyde was the recipient of the Irving Radcliffe Fellowship while she worked in the laboratory of Dr. William Townsend Porter, in the Department of Physiology, from 1896 to 1897. (She was introduced to the lab with a letter written on her behalf by Henry Pickering Bowditch, whom she met at the University of Bern, Switzerland.)

The results of Hyde's research in Porter's laboratory appeared as a paper entitled "On the Effects of Distention of the Ventricles on the Flow of Blood Through the Walls of the Heart" in Volume I, 1898, of the *American Journal of Physiology*.

Her bibliography of published papers includes work on the control of

respiration in *Limulus polyphemus*, on the development of the medusa in three species of scyphozoan, on salivary gland function in the octopus, on the effect of heart muscle action on coronary blood flow, on collateral circulation in the cat after ligation of the postcava, on the nervous system of *Gonionema murbachii*, on the nerve distribution in the eye of *Pecten irradians*, on the localization of the respiratory center in the skate, on the functions of the nervous system with special regard to respiration in *Aerididam*, and on differences in electrical potential in developing eggs.

Unfortunately, an academic title at Harvard Medical School was not to be one of her firsts; notwithstanding, she went on to the University of Kansas as associate professor of physiology in 1899.

**T**HE HAPLESS DR. EMMA Mooers was the second woman, according to the records, to serve HMS without faculty status. No fewer than nine pieces of correspondence appear in the archival collection of President Lawrence Lowell about an acceptable title for Mooers. Her scientific background remains untraceable. She is described as Dr. Ernest Southard's assistant in Gay's biography and as "Custodian of the Neuropathological Collection" in a formal appointment letter from Mr. Joseph Warren, assistant secretary to the President and Fellows of Harvard College, to Miss Emma W. Mooers on July 20, 1910. (Despite several reminders from Southard that her title was Dr., all correspondence from President and Fellows addressed her as Miss Mooers.)

On July 26, 1910, Southard, then Bullard Professor of Neuropathology, wrote to Joseph Warren, "Personally I have little or no objection to the title, other than that it does not adequately express all the proposed functions of the position. The research function in particular falls without the scope of the title 'Custodian.' Meantime, Dr. Mooers herself objects strenuously to the title, which she believes undignified."

Mr. Warren rebutted with, "It may interest you and her to know that there is one honorable title not very different from hers in the University. Mr. James W. Brooks of Petersham is the Honorary Keeper of the Harvard Forest. No question as to the lack of dignity of this office has arisen. There is not much distinction between 'keeper' and 'custodian.'"

On September 29, 1910, President Lowell himself attempted to settle the matter in a letter to Southard: "I brought up the question of Miss Mooers' appointment before the Corporation, and they would be very glad to change her title to any other that would be satisfactory to her, which does not imply that she holds, or that women are entitled to hold, a Fellowship in the Medical School." A message penned at the bottom of the letter notes, "Dean Christian over the telephone on October 7th said that he saw no reason for changing Dr. Mooers' title and that he favored dropping the whole question."

Southard, undaunted by Christian's telephone message, wrote to Lowell on October 5, 1910, "As I wrote to Mr. Joseph Warren, I should now like to



*Drs. Southard and Canavan at the Gilbreth School of Scientific Management, 1915*

suggest that Dr. Mooers be given the title of Assistant Director of the Neuropathological Laboratory. This title seems to all concerned to be both dignified and differential. Moreover, the title avoids all possible confusion with pre-existing titles such as Curator, Fellow, Assistant and the like."

Mr. C.C. Little, secretary to the President and Fellows of Harvard College, replied on October 8, 1910, "President Lowell has referred to me the matter of Miss Mooers' title, saying, in so doing, that it would be impossible for the Corporation to vote on the matter of giving her the title of Assistant Director of the Neuropathological Laboratory unless her nomination for that title had gone through the usual channels at the Medical School." On April 20, 1911, Southard wrote to Little to ask him to make public the appointment by publishing it in the *Gazette*. Again he reminds Little, "The title 'Miss' is inaccurate and should be replaced with that of 'Dr.'" Apparently the title referred to was that of custodian, for no other title appears in the University's appointment records.

Unfortunately, Dr. Mooers did not have long to use this new non-faculty title, for she died that year from a streptococcal infection attributed to

contact with a brain which she had handled during an autopsy done by Southard, who became critically ill from the same infection.

**B**IOCHEMIST WILLEY DENIS fared no better with Harvard, as reflected in a June 20, 1911, letter from Dean Christian to President Lowell: "Since the nominations from the Faculty for annual appointments were sent in, I have discovered that the person nominated for Research Assistant in Biological Chemistry, Willey Denis, is a woman. If you will recall, there was considerable discussion occasioned a year ago in regard to the nomination of Dr. Mooers for a fellowship, and the feeling in the Faculty is strongly against appointing a woman to be in a teaching position. I have just been talking with Dr. Folin about this matter, and it seems satisfactory to him to change the title from Research Assistant to Technical Assistant and to omit the name from the roster of instructors and simply have her name appear upon the payroll as do other technical assistants, stenographers, etc. The holder of this position does no teaching anyhow, and the position was created when Dr. Folin first came to the School to furnish him a trained assistant for his own researches; conse-

quently, I see no objections to this change and would recommend that the title be changed from Research Assistant to Technical Assistant and that her name not appear among the list of instructors, assistants, etc. and that her salary be the same as she would otherwise receive as a regular member of the teaching force and be provided for in the general budget under the heading of 'employees' rather than 'instructors.'"

**M**YRTELLE MAY CANAVAN was born in Michigan in 1879. She graduated from Women's Medical College of Pennsylvania in 1905 and was laboratory assistant at the Danvers State Hospital from 1907 to 1910 before serving four years as resident pathologist at the Boston State Hospital and another 10 years as pathologist to the Massachusetts Department of Mental Diseases. In 1909-1910, she was first author or co-author of seven papers on bacillary dysentery in Danvers Hospital. In 1910, she co-authored with Southard the paper, "Bacterial Invasion of the Blood and Cerebrospinal Fluid by Way of Mesenteric Lymph Nodes: A Study of Fifty Cases of Mental Disease," published in the *Boston Medical and Surgical Journal*.

Over the next 11 years, Canavan co-authored 13 more papers with Southard bearing such titles as "On the Nature and Importance of Kidney Lesions in Psychopathic Subjects: A Study of One Hundred Cases Autopsied at the Boston State Hospital," "Normal-looking Brains in Psychopathic Subjects," "Notes on the Relation of Somatic (Non-neural) Neoplasms to Mental Disease," "Focal Lesions of the Cortex of the Left Angular Gyrus in Two Cases of Late Catatonia," "The Stratigraphical Analysis of Finer Cortex Changes in Certain Normal-looking Brains in Dementia Praecox," or "Microlenia and Other Observations on the Spleen in Psychopathic Subjects."

As for her other duties, Canavan became an assistant state pathologist in 1914 when Southard became too involved with the direction of the new Psychopathic Hospital in 1912 to carry the responsibility of state pathologist alone.

So persuaded did Canavan and Southard become of the possibility of relating neuropathologic findings to the character and health of individuals that she paid him the ultimate tribute



upon his death at age 44 in 1920 by measuring and dissecting his brain, as well as the brains of his parents, and recording her detailed findings in a monograph which can be found in the Countway Library. She summarized, "The frontal lobes are prominent, probably associated with his planning and judicial mind and the calcarine regions are full, indicating the remarkable visuo-psychic ability (chess). Unequal first temporal gyri strike the first note of anomaly."

There is no record of any attempt by Southard to secure a Harvard title for Canavan. After his death, one more colleague tried to secure a senior title for a woman, this time with more success. On February 13, 1923, Dr. S. Burt Wolbach, head of the Department of Pathology, wrote to Dean David Edsall asking him for an opinion in regard to first, the advisability of having a woman in charge of the Warren Museum, and second, the eligibility of Dr. Canavan. On March 1, 1923, Wolbach wrote again to Edsall: "I am calling a meeting shortly to consider the appointment of Dr. Myrtelle Canavan as Curator or Director of the (Warren Anatomical) Museum and I hope to make a salary for her of \$4,500 out of the Museum funds and the Pathology budget."

On March 7 Wolbach wrote a long letter to Edsall to describe the outcome of his meeting with the other members of the Museum Committee, Stanley Cobb, then assistant professor of neuropathology, and John Warren, then associate professor of anatomy. He wrote, "In the discussion of Dr. Canavan, Dr. Warren was opposed to the appointment of a woman to the position of Curator. He was not opposed to the appointment of a woman as Assistant Curator under my direction. Dr. Cobb was strongly in favor of Dr. Canavan, whom he regards as an ideal person for this place. I am of the opinion, after making inquiry, that she has qualities which are probably superior to those of any individual we are liable to get who would serve in the capacity of Assistant Curator. I wish, therefore, to nominate Dr. Canavan for the position of Research Assistant in the Department of Pathology and as Assistant Curator of the Warren Museum. The matter of title for Dr. Canavan is of no practical importance, as long as she is recognized as having immediate supervision over the employees in the Museum and as



*Pathologists to the Massachusetts State Hospitals, 1917: Harry Solomon, Myrtelle Canavan, Abraham Myerson, Douglas Thom, Ernest Southard, Herbert Thompson, Lawson Lowrey, and Willard Rappleye*

the active person in charge. . . . I think in order to secure permanent cooperation between this Department and the Museum that I should be officially recognized as the Head of the Museum, Honorary Curator or what not."

Wolbach's response to these recommendations was to write Canavan on April 28, 1923, to ask, "Can you think of a name for yourself in your new capacity?"

On May 17, 1923, Wolbach sent a supplementary report on the Warren Museum to a member of the Overseers' Visiting Committee in which he wrote about the search for a candidate to be in charge of the Warren Museum: "A suitable person, we believe, has been found in Dr. Myrtelle Canavan, who as you know was for many years associated with Dr. Southard and who is now Pathologist to the Massachusetts Department of Mental Diseases. Dr. Canavan is an enthusiastic pathologist and has completed some very excellent researches and gave very careful consideration to the project before deciding to become a candidate for the position. President Lowell and Dean Edsall are willing to have a woman in this position, which of course will not correspond to the

Curatorship of previous years; in fact we have not yet decided upon a title for Dr. Canavan. She will hold the position of Research Assistant in the Department of Pathology and will act as Director of the Warren Museum and will carry on the certain kinds of research in which she has made a beginning, mainly in the pathology of the central nervous system. Cooperating with Dr. Canavan will be a number of assistant curators, such as Dr. Stanley Cobb for the central nervous system, Dr. Tyzzer for parasitology, Dr. Fritz Irving for obstetrics and gynecology. It is Dr. Canavan's and my intention to make the Museum a repository for all kinds of pathological material having a potential value in research irrespective of its value as an exhibition material. . . . I know that the pathological material now controlled by the Medical School is unequalled in this country, and I regard the affiliation of the Warren Museum with the Pathological Department as the only possible means of making this material fully available for teaching and investigation."

On November 15, 1923, Wolbach wrote in a letter to Edsall about salary arrangements for Canavan: "It may in-



terest you to know that Dr. Canavan has been asked to give the course in neuropathology at Boston University this year, to consist of fifteen exercises during May."

Let it be noted that 12 years after the title dilemmas of Willey Denis and Emma Mooers, it took only eight pieces of correspondence and nine months of negotiation for the Harvard Corporation to approve an appointment for Dr. Myrtelle Canavan as curator of the Warren Museum in November 1923: not custodian, not assistant curator, but *curator*. Wolbach wrote to Canavan on November 30, 1923, a somewhat limp congratulatory note, "If I interpret the copy of the Corporation's vote correctly, you are to be congratulated. It would look as if you are appointed Curator of the Warren Museum without limit of time, which does not seem possible in view of the attitude last spring."

While serving as curator of the Warren Museum, Canavan went on to publish papers titled "Schilder's Encephalitis Periaxialis Diffusa," "Chronic Manganese Poisoning," "Histology of the Midolivary Region of the Medulla Oblongata in the New-Born Infant," "Enostoses Within the Calvarium," "Multiple Sclerosis in a Mental Defective," and "Effects of an Anterior Collasal Glioblastoma Multififorms on the Entire Brain."

In a December 11 letter to Dr. Franklin Newell of the Boston Lying-In (as they tried to get an appointment at the BLI for Canavan), Wolbach justified Canavan's new title: "She has had about twenty years experience in pathology. She is State Pathologist to the various hospitals for the insane. She has been Acting Director of the laboratories at the Boston Psychopathic Hospital since Southard's death. She has written about forty papers on pathological subjects, about half of them dealing with the pathology of the central nervous system, and she is joint author with Southard of the Waverly Monographs, from the American Academy of Arts and Sciences, which deal with the pathology of mental disease. I regard her as a thoroughly trained and competent pathologist. She probably has averaged more post-mortems a year than any single individual in Boston during the last ten years." Despite these accomplishments, no professorial title was ever suggested.

Paul Yakovlev, clinical professor of neuropathology emeritus and a col-

league of Canavan's in the 1920s, confirms the respect with which her work in neuropathology was regarded. He recently recalled in a conversation with this writer that a disease bears her name, Canavan's Disease, a spongy degeneration of the nervous system which is a rare inherited disease of infants—and that she and Dr. Houston Merritt were the first to describe Marchiafava-Bignami's disease in the United States. He also pointed out that it was not only her University employers but also her own mother who were mystified by how to deal with this early medical scientist: Myrtelle sent the first check she received from Southard for neuropathology services home to her Main Line Philadelphia mother, who promptly returned the check, saying that she didn't want money "earned that way."

ONE OF CANAVAN'S LEAST known but far-reaching contributions was to train neuropathologist Louise Eisenhardt. Dr. Eisenhardt, whose birth date is conspicuously absent from obituaries in both the *New Haven Register* and the *Journal of Neurosurgery*, is said to have started work in 1915 "at a remarkably early age" for Harvey Cushing as an editorial assistant. By the time she had finished editing his book *Tumors of the Nervous Acusticus* while he was in France during World War I, she was eager to get a medical education herself and entered Tufts Medical School in 1921.

While studying medicine, Eisenhardt not only continued to do editorial work for Cushing but also began, in 1922, to keep a log of the morbidity and mortality statistics for his brain tumor surgical series. In 1925 she graduated from Tufts Medical School where, it was said, her scholastic record had never been excelled. She interned at the New England Hospital for Women and Children, and continued throughout her training to record every tumor treated by Harvey Cushing.

At his 70th birthday celebration, Cushing said of Eisenhardt's careful statistical evaluation, "Had it not been for this confounded little book which she was prone to consult at awkward moments, the operative and case mortality percentages for the meningiomas would have been found much lower and the end results much better. For

had I been left to myself, the temptation to exclude a case here and there to improve the figures would have been irresistible. . . . But you can't cheat in your own favor when someone else checks the record. The moral is, never try to keep your own score if you want to be trusted by others."

Eisenhardt succeeded Percival Bailey as neuropathologist to Cushing when Bailey was called to the chair of neurology and neurosurgery at the University of Chicago. No mention was made of an HMS title for his successor. For the next six to seven years, she continued to do pathologic diagnoses of tumor tissues, to keep the cumulative case log, to co-author papers with Cushing, and to teach neuropathology at Tufts. After Cushing's retirement from HMS in 1932, she moved his *Brain Tumor Registry* to New Haven, where she co-authored with him a major work on meningiomas published in 1938. In 1942 she and Myrtelle Canavan co-authored an atlas entitled "The Brains of Fifty Insane Criminals. Shapes and Patterns."

In 1944, Eisenhardt became managing editor of the *Journal of Neurosurgery*, a position which she held for 22 years. In 1965, an issue was dedicated to her, and she was asked to deliver the First Harvey Cushing Oration at the April Harvey Cushing Society meeting.

At a luncheon following her oration, a toast was offered: "To Louise, then, who is the heart and soul of the Harvey Cushing Society, and has been since its inception; to Louise, who is the moving spirit of the *Journal of Neurosurgery*; to Louise, who was co-author and is still the guardian of that unique institution, the *Brain Tumor Registry*; to Louise, who though herself not a neurosurgeon has been the midwife for modern scientific neurosurgery not only in America but the world over; but above all, to Louise, the sweet, kind, considerate, generous, nurturing, all-embracing mother figure to generations of young neurosurgeons; to Louise—long life, good health and happiness always!"

As assessment of Dr. Eisenhardt by a colleague in a 1959 *Miami Herald* piece on the occasion of a meeting of the Congress of Neurological Surgeons was no less enthusiastic. "She is probably the authority on brain tumor diagnosis in the world. Not only is she personally tops, but she has helped train over 70 percent of the 700-plus





Louise Eisenhardt, courtesy of the Historical Library, Yale Medical Library

doctors who have taken board examinations in neurosurgery. Every brain surgeon knows and respects her."

In her obituary in the *Journal of Neurosurgery*, William J. German, professor neurosurgery at Yale School of Medicine, wrote, "It is unlikely that any journal has had such editorial excellence for such a long period."

Eisenhardt's accomplishments were apparently insufficient to justify a Harvard Medical School faculty title between 1926 and 1932, but she did manage to climb the professional ladder at Yale, with an instructorship in 1934, a research assistantship in 1936, an assistant professorship a few years later, a research associateship in 1945, and a curatorship of the *Brain Tumor Registry* in 1944. Boston University made her an associate professor of neuropathology as well.

**N**ONETHELESS, THE TIDES of social change were clearly rolling over HMS. Not only did Myrtelle Canavan become a curator without qualifying adjectives in 1923, but Alice

Hamilton had become an assistant professor of industrial medicine in 1919, the first woman to hold a faculty appointment at Harvard University. Although Dr. Hamilton's appointment was in the Faculty of Medicine, her academic responsibilities were in the Harvard-MIT School of Public Health (to become the Harvard School of Public Health in 1922).

At the time of Hamilton's appointment, Dean Edsall wrote to President Lowell, "...the one person we know who would be likely to do it extremely well is Dr. Alice Hamilton.... Her studies stand out as being of unquestionably more extensive and of finer quality than those of anyone else who has done work of this kind in the country. A very unusual and sound person."

President Lowell made it clear that this appointment did not constitute a precedent for admitting women to the Harvard student body. He also placed three qualifiers on her Harvard appointment: she should not participate in the academic procession at Commencement, she should not enter the

Harvard Club, and she was not to expect the professorial privilege of a quota of football tickets. Between 1919 and 1935, the time of her retirement, Alice Hamilton received no promotions.

This writer's penultimate Bicentennial wish is that we could know the reaction of President Lowell to the 1983 Harvard Medical School faculty catalog, which shows 10 women professors, 34 women associate professors, 106 women assistant professors, and 552 women instructors and lecturers. He might also be interested in the 1980 official policy of the President and Fellows of Harvard College (first affirmed in 1969): "The President and Fellows call upon every member of the University to exercise the thoughtful and careful planning necessary to ensure a wholly non-discriminatory mechanism to recruit, hire, and promote women, members of minority groups, qualified handicapped individuals, and disabled and Vietnam era veterans at all levels of employment throughout the University."

My last Bicentennial wish is that we could experience our own reactions to the catalog of 2082-2083, with who knows what included in the roster. □

*Eleanor Shore '55 is associate dean for faculty affairs and a member of the Bulletin's editorial board.*

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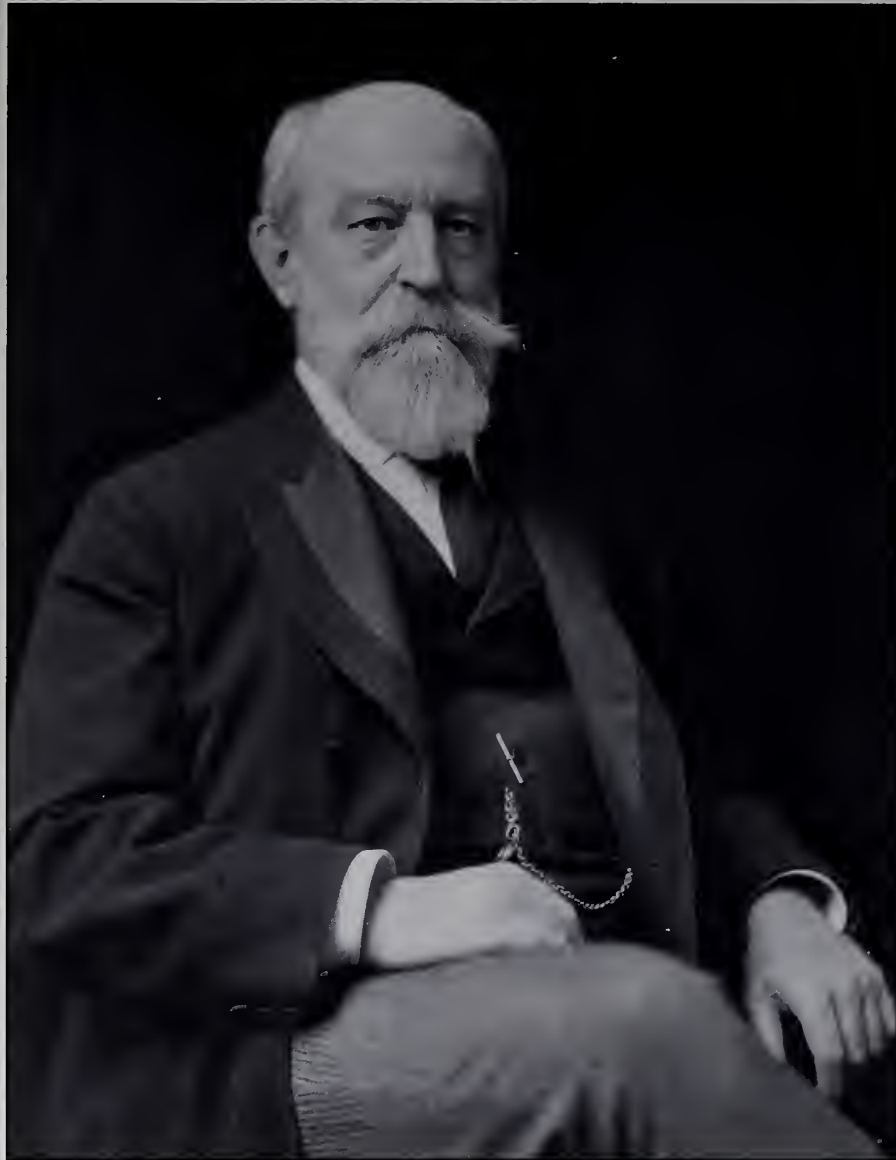
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# H.P. Bowditch, Harvard's First Full-Time Physiologist

by W. Bruce Fye

**M**edical education in America underwent a series of dramatic and far-reaching reforms in the closing years of the 19th century. Among the major developments was the introduction of the full-time teacher—an individual who devoted his whole time to teaching and research sponsored by the medical school.

At Harvard, Jeffries Wyman, Oliver Wendell Holmes, and Louis Agassiz gave up the practice of medicine to devote themselves exclusively to teaching and research in the biological sciences—a dramatic break with the tradition of the physician-scientist in America. In 1871, Henry P. Bowditch, a former student of Wyman and Holmes, joined their ranks as a full-time teacher and researcher of physiology, a move which had a profound impact on the professionalization of physiology and medical education in America.

Henry Pickering Bowditch was born in 1840, the son of prominent Boston merchant Jonathan I. Bowditch, grandson of the pioneer mathematician and astronomer Nathaniel Bowditch, and nephew of the influential Boston physician Henry Ingersoll Bowditch. After graduating from Harvard College in 1861, young Henry enrolled in the newly founded Lawrence Scientific School of Harvard, where he came under the influence of Jeffries Wyman, the comparative anatomist and naturalist. Service in the Civil War interrupted his studies, but after the war Bowditch completed his work at Lawrence and subsequently entered HMS in the fall of 1866.

Inspired by Brown-Séquard's lectures on physiology, and encouraged by Wyman and Holmes, Bowditch went abroad, with financial support from his father, to supplement his medical education. He went first to Paris, where he studied with Claude Bernard, France's leading physiologist, and did research under Louis-Antoine Ranvier at the College of France. Eventually the laboratory facilities in Paris proved inadequate, so with the encouragement of HMS classmate William James and German physiologist Wilhelm Friedrich (Willy) Kühne, Bowditch traveled to Germany to attend courses and participate in original research at the newly opened Leipzig Physiological Institute directed by Carl Ludwig.

It was during his stay at the Leip-



zig Institute that Bowditch decided to devote himself to physiology rather than the practice of medicine. Wyman wrote to him, "Physiology is just beginning to receive the attention that belongs to it & I am sure there will be openings for places amongst us, though of course unless endowed better than they have been heretofore they will never be very remunerative."

While Henry Bowditch was in Leipzig, Charles Eliot, a chemist under whom Bowditch had studied, assumed the presidency of Harvard. Almost immediately upon assuming office, Eliot attempted to entice Bowditch back to Harvard as a lecturer in physiology. Bowditch refused, explaining that were he to return home prematurely from his European postgraduate training, he would be "sacrificing a large part of the benefit to be derived from my studies in the German Universities." He was also courting Selma Knauth, daughter of a Leipzig banker, whom he married before he returned to America.

The results of Bowditch's studies were published in German from Lud-

*When President Eliot first attempted to entice him back to Harvard, Bowditch refused, explaining that he would be "sacrificing a large part of the benefit to be derived from my studies in the German Universities."*

spired and intimately directed by him. John Burdon Sanderson, a student in Ludwig's laboratory at the same time Bowditch was there, later recalled: "Each 'Arbeit' of the laboratory appeared in print under the name of the scholar who operated with his master in its production, but the scholar's part in the work done varied according to its nature and his ability. Sometimes, as v. Kries says, he sat on the windowsill while Ludwig . . . did the whole of the work. In all cases Ludwig not only formulated the problem, but indicated the course to be followed in each step of the investigation. . . . In the final working up of the results he always took a principal part, and often wrote the whole paper. But whether he did little or much, he handed over the whole credit of the performance to his coadjutor."

Bowditch's research in the lab also led to the discovery of Bowditch's law: 1. Any stimulus that will produce a contraction of the heart muscle will cause as powerful a pulsation as the most powerful stimulus; and 2. Nerves cannot be tired out by stimulation.

Bowditch sent an enthusiastic description of Ludwig's physiological institute and methods to the prominent *Boston Medical and Surgical Journal*, claiming that "the patient, methodical and faithful way in which the phenomena of life are investigated by the German physiologists not only inspires great confidence in their results, but encourages one in the hope that the day is not far distant when physiology will take its proper place as the only true foundation of medical science."

While Bowditch was still in Germany, the HMS faculty carried on their well-chronicled debate over President Eliot's proposed reforms for the medical school. One of the results of their decision in favor of the German method of laboratory training in

the basic sciences was a full-time, salaried appointment in physiology for Henry Bowditch.

Bowditch, still in Germany, heard of the offer by letter. He would be provided with a modest laboratory in the attic of the school. His father would provide funds, supplemented from the estate of Bowditch's HMS classmate George Swett, to purchase apparatus. Oliver Wendell Holmes would formally give up the teaching of physiology, a subject he had never emphasized, and Bowditch would be appointed assistant professor of physiology, the sole faculty member of the department.

Bowditch's father wrote to him that Eliot "seemed well satisfied" with the arrangements and that the dean of the medical faculty, Calvin Ellis, "said you would have all you desired." The letter concluded "I have no doubt that you will find matters arranged to your liking." Announcing his decision to accept the position, Bowditch replied in a cautiously optimistic tone, ending, "if I don't like the way I am treated I can always resign."

Having witnessed the important position of the basic medical sciences in the curriculum of the German universities and the influence of the full-time scientific teachers in these institutions,



William James

wig's laboratory in 1871. The paper included Bowditch's description of the "treppe" phenomenon—that after prolonged rest, rapid repeated stimulation of an isolated muscle preparation leads to gradual increase in the strength of muscle contraction. It also contained the discovery of the "all-or-none principle," that a stimulus applied to heart muscle is either insufficient to excite it or else excites it maximally.

As was characteristic of Ludwig, this publication did not bear his name, although the research was doubtless in-



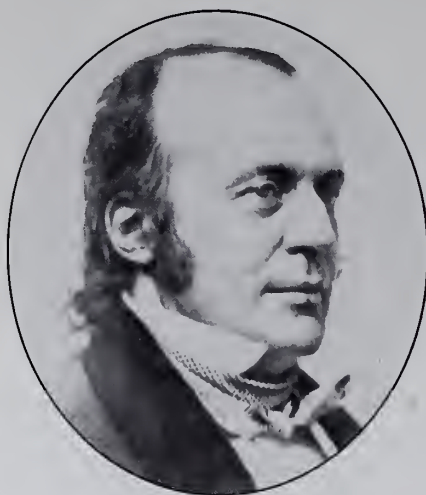
Harvard president Charles Eliot

Bowditch lobbied Eliot for an independent department of physiology and a voice in the administration of the medical school.

Writing from Ludwig's laboratory, Bowditch explained: "I think . . . that the professorship of physiology should be an independent chair, as it has long been in nearly all European Univer-

sities, and that the person who has the responsibility of teaching such an important branch of medicine should have a voice in the management of the School. This I consider a matter of vital importance for the reputation of the Medical School and I trust that among the projected reforms a change of this sort may be included....” The stage was now set for Henry Bowditch to introduce into America the German interpretation of the role of the full-time basic medical scientist.

Though Bowditch’s Harvard laboratory was very modest at the outset, his appointment represented the beginning of university support for the full-time basic medical scientist whose acknowledged role was to combine



Louis Agassiz

teaching and research in a specialized area of medical science. Upon his return to Harvard in 1871, Bowditch introduced practical laboratory training in physiology to Harvard medical students. The Harvard Catalogue noted two important developments: “to third-class students opportunities are given for original investigations in the laboratory,” and courses for medical graduates were initiated “as a substitute in part for opportunities heretofore sought for in Europe.” For \$30 one could perform “original investigations in the Physiological Laboratory.”

By 1872, William James was appointed assistant in the physiological laboratory, and by 1874 publications began to appear reporting the results of original research undertaken in Bowditch’s laboratory. Coworkers and coauthors in the laboratory in-

*George B. Shattuck claimed in 1894 that Bowditch “by his clear judicial mind and impartial spirit contributed more than any other to guide the school safely through the experimental stages of the new system of education.”*

cluded James Putnam, George M. Garland, Isaac Ott, and Charles S. Minot in the 1870s; and Joseph W. Warren, G. Stanley Hall, and Frederick W. Ellis in the 1880s.

The early papers from the laboratory were published in the *Boston Medical and Surgical Journal* until the appearance of the *British Journal of Physiology*. Bowditch, H.C. Wood, and H. Newell Martin, a pupil of the British physiologist Michael Foster and first professor of biology of the newly opened Johns Hopkins University, served as American editors of the new journal. The early volumes included contributions from Bowditch’s laboratory dealing with respiratory physiology, cardiac physiology, and neurophysiology, assuring international recognition for his work.

Beginning in 1873, Bowditch published a regular “Report in Physiology” in the *Boston Medical and Surgical Journal*. These brief pieces informed American physicians of the dramatic medical and scientific discoveries emanating from the laboratories of Europe, Germany in particular. The international friendships Bowditch had forged during his period of study abroad formed a network of scientists interested in promoting the scientific side of medicine, including E. Ray Lankester, Edward Schafer, and William Gaskell of England, Angelo Mosso of Italy, and Ludwig, among others.

Aside from reviews of new publications in physiology and related scientific disciplines and his regular reports on progress in physiology, it was nearly a decade after his return from Leipzig before Bowditch published any significant papers on physiology. His interest in anthropometry, a field which he helped pioneer, led to two important publications on the growth

of children in the 1870s. Joseph Warren, a graduate of Harvard College who spent nearly a decade studying in Germany, where he obtained his medical degree from the University of Bonn in 1880, collaborated with Bowditch in several investigations on the innervation of the limbs and reflex action. Their results, published between 1883 and 1890, were of major significance and had important clinical implications for the development of local anesthesia.

In 1877, William Osler, then professor of the Institutes of Medicine at McGill, wrote in the *Canadian Journal of Medical Science* of the Harvard physiology laboratory: “Physiology, under the care of Prof. H. P. Bowditch, received the attention that would be expected from such a well-known worker; his time being wholly devoted to the subject. In addition to lectures and recitations there are exercises called conferences, which form a feature of this school.... Practical physiology is taught in the laboratory, and at my first visit (1876) I had the pleasure of seeing a class of students working out for themselves upon frogs the chief facts in the physiology of reflex action.”



Carl Ludwig

Undoubtedly influenced by Bowditch, Charles Eliot declared in 1874 that “. . . in order to enlarge the range of medical knowledge it is absolutely essential that there should be investigators in medical science—men who have received the best training that the world can give; who are gifted by nature with the qualities which investigation demands, and who are



enabled to live in the prosecution of investigation. For this purpose we need salaries, laboratories, working places, museums, for such men."

The new medical school building, opened in December 1883, included a large and well-appointed laboratory of physiology which was "intended to serve primarily as a laboratory of research, and secondarily as an adjunct to the lectures on physiology in the preparation of suitable apparatus and experiments. Courses in 'practical physiology' are also given in the laboratory to the class in sections of a convenient size."



Calvin Ellis

Henry Bowditch was selected as dean of the Harvard medical faculty in 1883. Noting the significance of this appointment, Henry James wrote in his biography of Charles Eliot: "nothing could have proved more pointedly that the School had become an institution for the teaching of medical science instead of one which an association of practitioners conducted for the purpose of licensing men cheaply to go out and learn that art of healing at the bedsides of their patients."

In 1887 Henry Bowditch, H. Newell Martin, and Philadelphia physiologist and neurologist S. Weir Mitchell proposed the formation of a national physiological society. Of the 17 individuals who attended the organizational meeting of what would be called the American Physiology Society, eight had worked in Bowditch's laboratory.

William Howell, the society's historian and an associate professor in

Bowditch's department in 1892-93 before he became the first professor of physiology at Johns Hopkins University School of Medicine, assessed Bowditch's impact on the society: "In the Physiological Society his influence in the beginning was predominant. He was *facile princeps*, not only because of his position as president during the early years [he was president for six of the first eight years], but chiefly perhaps, because of his personality."

Weir Mitchell wrote upon Bowditch's death: "the traditions of the [American Physiological] society, particularly its character as an association to encourage research, are largely the result of his initiative. His example and his genuine appreciation of new work as it was reported at meetings of the society were a wholesome stimulus to young men beginning physiological investigation."

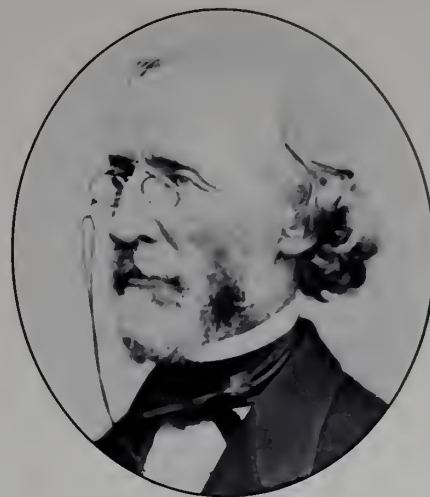
**B**owditch's Department of Physiology was admired throughout the world by the late 1880s. Carl Ludwig wrote to him in 1888, "you have founded a physiological institute." William Townsend Porter succeeded Bowditch as director of the department when Bowditch became dean.

As dean of the Harvard medical faculty, Bowditch increasingly directed his attention to broader questions of medical education. His publications at the turn of the century included "Reform in Medical Education" and "The Medical School of the Future." His role in advancing the position of HMS by encouraging reform was noted by local physicians as well as medical educators throughout America. President of the Harvard Medical Alumni Association George B. Shattuck claimed in 1894 that Bowditch "by his clear judicial mind and impartial spirit contributed more than any other to guide the school safely through the experimental stages of the new system of education."

By 1900 Bowditch had withdrawn from teaching in the Department of Physiology. He remained active in the affairs of the university and helped secure a gift in excess of \$1 million from J. Pierpont Morgan in 1901 to improve the facilities of the medical school. The closing years of Bowditch's life were marked by progressive disability from Parkinson's disease. He died in 1911.

William Osler later wrote: "It is not too much to say that the present splen-

did position of the Harvard Medical School is due to him, as dean, more than to any other man. President Eliot



Jeffries Wyman

started the reforms, but Bowditch was the active promotor." An obituary published in the *Lancet* claimed, "The death of Professor Bowditch removed the *doyen*, and in reality the founder, of the American School of Physiologists." □

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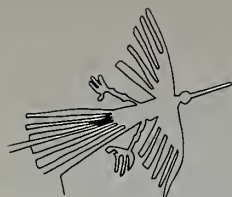
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